MARCH 31, 1952 NEWS ISSUE

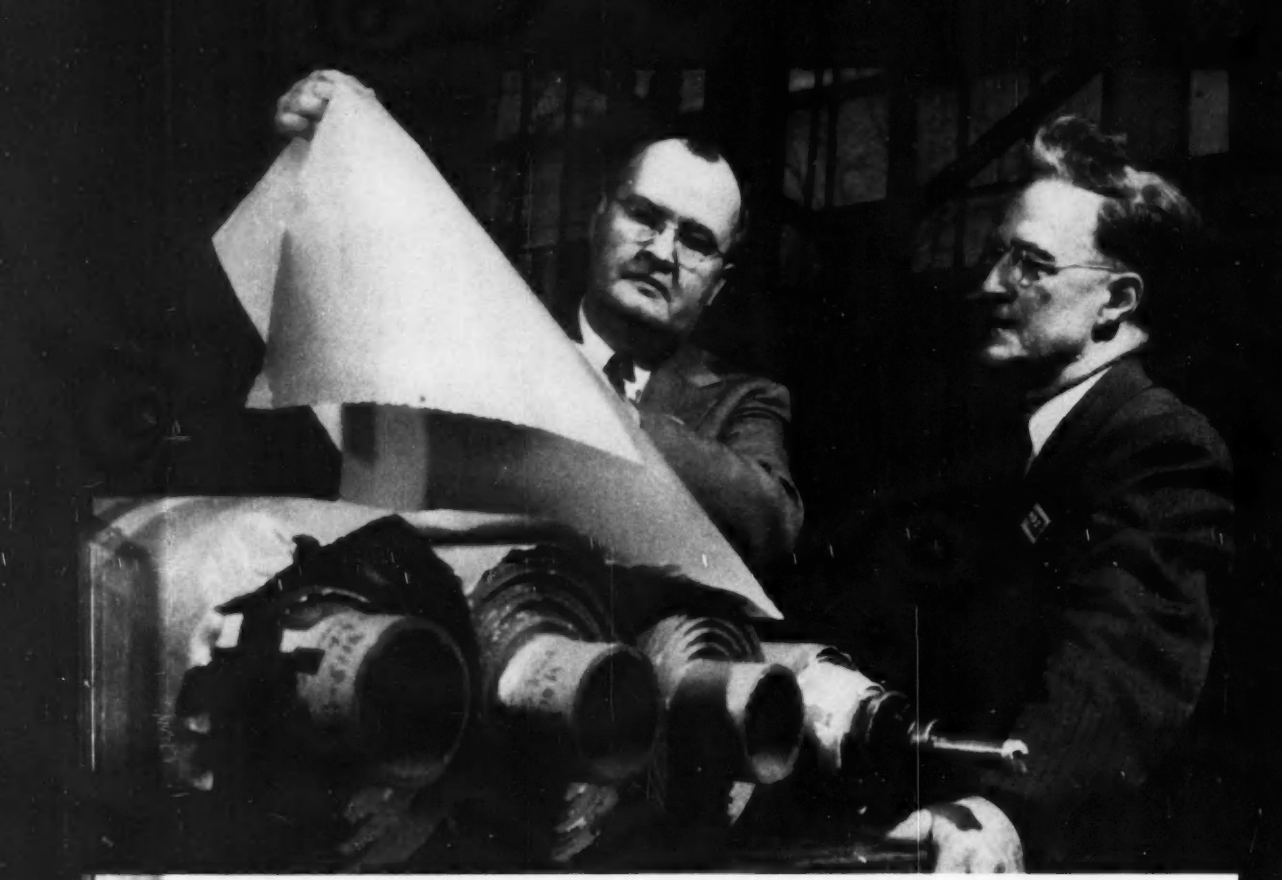
Electrical World

Price 35 Cents A McGRAW-HILL PUBLICATION

Clyde H. Seybold: 905 co-ops elect him head of NRECA . . . . . Page 29

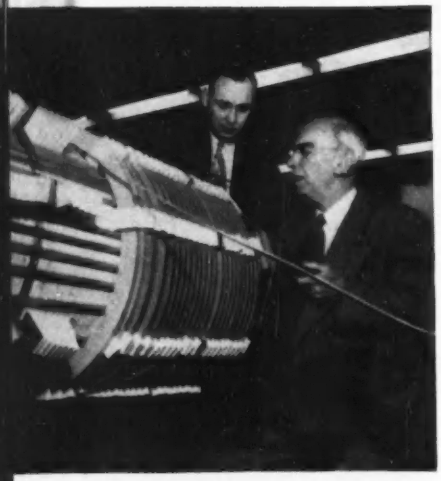
Thousands of Living Monuments . . . Page 16

More Homes in 1952 . . . Page 50



Excellent dielectric properties of mica mat sheets are discussed by Dr. H. F. Miller, Manager G-E Transformer Laboratory, Pittsfield, Mass., and Dr. K. B. McEachron, Manager, Laboratory-Engineering Dept. Mica mat process can use domestic mica, ending dependence on foreign supplies.

NOW... PURE MICA BY THE ROLL



Application of mica mat in large dry-type distribution transformer is examined by Dr. E. A. Kern, Supervisor of Insulation, Transformer & Allied Products Lab., where process was developed, and E. D. Treanor, Manager, Dist. Transformer Engineering. Tests show improved protection from corona.

New development in insulation, mica mat promises improved electric equipment

Answering the need for an improved insulating material to expand horizons of electric equipment design, mica mat is an important new research contribution to electrical industry progress.

For the first time, it makes available the advantages of pure mica in an almost limitless variety of forms and applications. Also, for the first time, small flake domestic mica can be used, eventually ending dependence on critical foreign supplies.

Key to this development is a new process in which mica, reduced to small flakes, may be manufactured like paper into continuous sheets. Rolls 24 inches wide and up to 2,500 feet long have been produced. Variations in processing permit molding into different shapes. In combination with other materials and binders, mica mat makes possible a whole series of new insulating products with qualities better than those previously attainable.

Already, it has proved its value in railroad traction motors and studies of possible uses in other rotating equipment are under way. Applications are being made in dry-type distribution transformers. New opportunities are opened up for the production of improved electric equipment. The whole electrical industry will benefit. General Electric Company, Schenectady 5, New York.

301-194

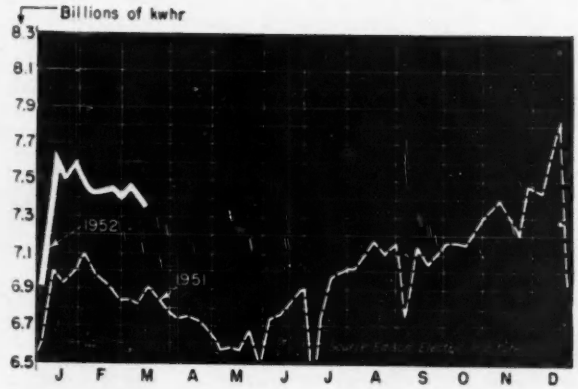
MORE POWER TO AMERICA

GENERAL ELECTRIC

VOLUME 137, NO. 13

March 31, 1952

Electrical World



Output Week Ended March 22—7,353,977,000 Kwhr

Per Cent Change From Previous Year

	Total US	New Eng.	Mid. Atlan.	Cent. Ind.	West Cent.	South-east	South Cent.	Rocky Mount.	Pacific NW	Pacific SW
Mar. 22	+ 7.4	+5.3	+6.8	+4.6	+7.5	+10.0	+18.2	+7.3	+6.9	+ 5.5
Mar. 15	+ 7.4	+4.6	+6.1	+4.0	+7.3	+ 9.6	+17.8	+8.6	+4.8	+11.9
Mar. 8	+10.3	+7.3	+7.9	+8.1	+9.1	+17.2	+19.1	+8.1	+5.8	+ 9.1

Electric Power Statistics

		Latest Month	Preceding Month	Year Ago
Peak Load (Million Kw)	Jan.	69.0*	70.5	63.4
Capacity (Million Kw)	Jan.	75.97	75.54	69.10
Production (Billion Kwhr)	Jan.	34.20	33.14	31.42
Hydro		9.90	9.13	8.88
Fuel		24.30	24.01	22.54
Fuel Consumption				
Coal (Million Tons)	Jan.	9.87	9.60	9.62
Oil (Million Barrels)		6.07	6.29	6.42
Gas (Billion Cu Ft)		52.27	52.72	43.58
Sales (Billion Kwhr)	Dec.	28.44	27.92	26.07
Residential		7.95	7.37	7.01
Commercial		4.77	4.68	4.29
Industrial		13.74	13.89	12.92
Other		1.97	1.97	1.86
Net Income Class A & B Utilities ($ Million)	Dec.	100.82	70.81	84.83
Estimated Dec. 52 Peak (Million Kw)	Dec.	81.1	80.7	75.3
Kwhr per Residential Customer (12 Month Average)	Dec.	2,004	1,988	1,830
Revenue per Kwhr Residential Service (12 Month Average)	Dec.	2.81¢	2.82¢	2.88¢
Canadian Production (Billion Kwhr)	Jan.	5.27	5.11	4.67

Business Statistics

FRB Industrial Production Index†††	Feb.	215*	215	217
Gross National Product Annual Rate ($ Billion)	4th Qtr.	333.0	327.6	303.7
E. W. 5 Industry Production Index	Feb.	124.8	124.4	119.7
ENR Construction Cost Index††	Mar.	115.4	115.1	112.8
BLS Consumer's Price Index	Jan.	189.1	189.1	181.5
NEMA Insulation Materials, Sales Index†	Dec.	466	511	564
NEMA Electric Appliance Sales Index†.	Dec.	218	269	364
NEMA Household Refrig. Sales Index†.	Dec.	115	87	219

*Estimated ††1936=100 †††1949=100 ††††1937-39=100 (Unadjusted)

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No. 3
IN A SERIES

A STATION ENGINEER ASKS—

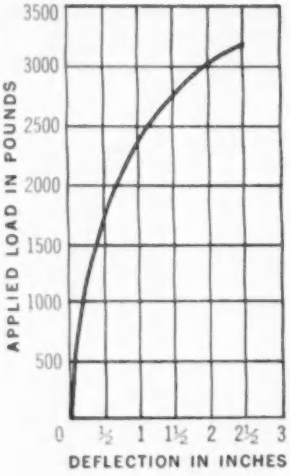
"Why is it necessary to shim 69 K.V. switch units ?"

[redacted] *You don't have to when you use Pinco L-6069 Switch and Bus Units.*

[redacted]

The Pinco L-6069 Switch and Bus Unit employs a ribbed malleable iron pin to give it the rigidity and strength required in this unit's application.

[redacted] The deflection curve below shows the rigidity of the Pinco L-6069 Switch and Bus Unit under various loads. The secret of Pinco's perfect alignment even when horizontally mounted, lies in the balanced design of the porcelain and hardware.



SPECIFICATIONS

PINCO L-6069 SWITCH and BUS UNIT

Cantilever Strength, upright (Base mounted)	1500 lbs.
Cantilever Strength, underhung (Cap mounted)	1000 lbs.
Torsion Strength	15,000 inch lbs.
Tension Strength	12,000 lbs.

This Unit More Than Meets The Above Ratings

SEE PAGE 116, PINCO CATALOG NO. 49 FOR COMPLETE ELECTRICAL AND MECHANICAL CHARACTERISTICS

PINCO INSULATORS

RIGHT ON THE JOB!

The Porcelain Insulator Corporation
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Sales Agents: **JOSLYN MFG. & SUPPLY CO.**
Offices in Principal Cities

THE ELECTRICAL WEEK

Featured in This Issue

DPA's Fleischmann makes it official: Materials controls are on the way out (p 7) . . . More metal is in store for appliance makers (p 9) . . . Arkansas P&L and TVA systems are hardest hit by **Midwest tornadoes** (p 10) . . . Nevada power shortage boils over into California (p 15) . . . Wisconsin utilities are providing **"trees for tomorrow"** (p 16) . . . Leading power factor on Pacific Gas & Electric system is discussed at PCEA conference (p 18) . . . Puget Sound P&L is fighting off 12 condemnation suits brought by PUD's and municipals (p 22) . . . Hydroturbine at Center Hill project attains efficiency of 94% (p 32) . . . Even with **AP&L capitulation,** Washington Water Power fight is not yet ended (p 43) . . . There will be more homes built in 1952 (p 50).

• • •

Latest from Washington—As of March 1, Depa has received 606 applications for tax amortization certificates on projects having an estimated cost of $3.8 billion and an estimated rated power capacity of more than 15.5 million kw. Of 606 applications, 137 have been turned down by DPA. These turn-downs were projects having an estimated cost in excess of $174.5 million. As of last week, about 168 power projects had been approved. . . Depa sends out new **Form Depa-22** to electric utilities asking for the type aluminum products they will require during third quarter . . . **A new DPA order** is in the works which would require large industries to file power requirements with Depa for any large plants they plan to construct. Idea is to coordinate supply with upcoming load . . . **Depa** has modified its directive requiring utilities to get prior authorization before selling controlled materials. Sales involving very small amounts of controlled metals are now exempt . . . Because the House seems in an **economy mood,** there will probably be few amendments offered on the floor to increase funds for federal power facilities . . . **Electric equipment manufacturers** are battling a proposed order which would require foreign buyers to have priority rating for all purchases of equipment.

Politics, rather than market pressure, might push the pound price of copper up 6¢ to 33½¢ within next few weeks.

From the Southeast—Virginia E&P and IBEW (AFL) agree to 7% wage increase which is subject to approval by local unions and sanction of Wage Stabilization Board . . . City of Gastonia, N. C., takes over **Duke Power's properties** inside city limits for about $220,639. City acquired ownership in territories that were annexed to the municipality Nov. 1, 1950. It is Duke's policy not to operate inside the city and therefore the lines were offered to the city . . . The $340,155 damage suit filed by Southwestern Power Administration against **Arkansas P & L** is dismissed by U. S. District Court on grounds that company has complied with provisions of a contract to purchase power from Norfork Dam during war years and provided stipulated rate reductions for government installations in the state.

Montgomery (Md.) County Council adopts first country-wide electrical code, standardizing minimum requirements and fees for installation permits and inspections. It prohibits installation of electrical equipment by any person without first obtaining a permit costing from $1 to $12.

From the Far West—California Oregon Power asks FPC for preliminary permit for a proposed hydroelectric project on McCloud River and Squaw Valley Creek in California . . . **Bonneville Power Administration** will begin construction soon of 115-kv transmission line which will interconnect Pacific P&L's Yale Dam project with Longview high voltage grid . . . **Puget Sound P&L's** net income for first two months of 1952 is 14% below a year ago, Pres Frank Mc Laughlin tells annual meeting of stockholders. He points out that he could not offer a timetable with regard to an over-all acquisition of the company's properties by seven PUD's (see page 22).

Union Electric of Missouri Pres J. W. McAfee says in 1951 annual report that Electric Energy, Inc, organized by company and four other utilities to supply power for AEC's project at Paducah, Ky., is now negotiating with AEC "concerning the provision of an additional substantial supply of power." He declares negotiations "have not yet resulted in any commitments by company, and details thereof cannot be disclosed at this time."

Rates—Maine PUC denies $3.1 million rate increase for **Central Maine Power** saying, "Basis of presentation that increased rates were needed to sustain company's credit is not justified by evidence in this case." It added that "no change for the worse in earnings is foreseeable at present." Pres William F. Wyman says he will again seek an increase in rates . . . Following City Council meeting, Mayor Otho Plummer says: "Based on all information presented us by **Gulf States Utilities Co,** as well as reports of auditors of Louisiana PSC, we believe Gulf States here in Beaumont, Tex., is entitled to some relief." The company has asked for 16.8% rate hike . . . **City of Anderson,** Ind., asks PSC approval to reduce rates by 10.3% for an estimated annual savings to consumers of $229,647 . . . **Pennsylvania Electric** asks PUC approval to increase residential, commercial and industrial rates $3.6 million a year or 7.8%, but after taxes, will net less than $1.6 million annually.

More than $370,000 in scholarships, fellowships, and grants will be offered by General Electric for 1952-53 school year under an expanded and revised educational assistance program, GE's Pres Ralph J. Cordiner announces.

Congratulations—Public Service of Northern Illinois elects **J. Harris Ward,** vice president and secretary. He has the same Commonwealth Edison titles . . . Graybar Electric Co elects **W. E. Henges,** president, succeeding A. H. Nicoll who remans as chairman of the board . . . Detroit Edison elects **Arthur S. Albright** vice president.

THE ELECTRICAL WEEK

CONTINUED

More from Washington—Depa has endorsed the 32 million kw expansion goal "with the understanding that this figure may need to be revised in the light of future events" . . . House Committee hearings began last week on **Hell's Canyon project** in Idaho, but even Interior Department officials held little hope that Congress would do any more this year than listen.

Boston Edison is installing the first 15-kv aluminum underground cable in U. S. to go into service at Woburn, Mass. Job involves 25,000 circuit ft of 3-phase 500,000 cir mil compact sector-type conductors having paper insulation and lead sheath . . . **Niagara Mohawk Power** will install two high voltage aluminum submarine cables (2,200 ft each) under the Niagara River to Grand Island this summer. Cable is 350,000 cir mil, paper-insulated, lead-covered armored 23-kv, 3-phase. It will be among the longest single section cable ever made and will be the first aluminum submarine cable of this voltage ever laid in this country, Harold I. Howell, system project engineer reveals.

Dayton P&L registers 50,000 shares of common stock with SEC to be sold under "Employees Stock Plan" . . . **Union Electric of Missouri** will sell $30 million of bonds.

IN THE INDUSTRY

Cooperatives in northern New Mexico will have a hard time justifying their plans for building a 30,000-kw steam plant and 191 miles of 115-kv transmission line. Public Service Co of New Mexico has offered to supply them with firm power sooner and cheaper than they can generate it. The co-ops have contended that they needed the plant and transmission line "to help relieve one of the most serious power shortages that any group of REA borrowers has to contend with." This charge sounds strangely hollow in light of the utility's offer.

When Plains Electric Generation and Transmission Cooperative (made up of 11 New Mexican and one Colorado distribution co-op) approached Public Service over a year ago with plans to build a plant in the Santa Fe area, the company tried to cooperate by agreeing to buy 15,000 kw. When it became apparent that the plant would not be built for some time, the company went ahead with its own expansion program. The first 20-Mw unit of its 70-Mw plant in Albuquerque will go into service this fall.

Company Plan Cold Shouldered . . . With its own power supply assured, the company continued to try to work with the co-op. In informal conversations as late as last December Public Service offered to supply Plains' requirements at a rate slightly in excess of 1¢ per kwhr. This offer was conditioned on an advance of $1 million for construction of the necessary transmission line from Albuquerque to the proposed plant site about 90 miles north. The advance was to have been refunded out of bills for power furnished. Co-op officials admit that this proposal was not given any consideration because they were determined to build their own generating plant.

In mid-February the Rural Electrification Administration approved a loan of $9,045,000 to the co-op to finance construction of a 30-Mw steam plant and 191 miles of 115-kv line. Then Public Service decided to put down in black and white its offer to save the co-op time, money, and materials.

Comparison of its offer with the announced plans of the co-op shows that:

1. Power supplied by the company would cost less—1.15¢ per kwhr against 1.22¢.
2. The energy would be available sooner—spring of 1953 instead of fall of 1954.
3. The co-op would save $7,685,000 of original investment as well as manpower and critical materials.

Customers Will Pay for Victory . . . Full details of the proposal have been sent to REA Administrator Wickard as well as to Senators and Congressmen from New Mexico. In the interest of preventing unnecessary use of materials, manpower, and public monies, it should be studied carefully. If the co-op insists on proceeding with its present plans, it will be at the expense of its customer-owners who will wait longer and pay more for power.

TECHNICAL NOTES

ARCHER E. KNOWLTON

Air-conditioning load in typical offices runs about 3 watts per square foot of floor area.

Motors for hermetic refrigeration compressors are immersed in the refrigerant. Their limitation to loading is therefore torque-to-stall rather than thermal.

Inorganic cements are less prone to support fungus growth and thus occasion cracking of porcelain in fused cutouts.

Sharp bending of ACSR distribution wire around dead-end spools has deformed the aluminum to the point of exposure and failure of the steel core.

Aluminum to copper joints might well be made, if possible, with the aluminum above the copper because copper salts should not be permitted to flow downward over the aluminum and corrode it.

Unit power plants should probably be provided with separate amplifier system to reach the operators of the respective unit components. Simultaneous control should nevertheless be provided for fire and other emergencies affecting the entire plant.

Reverberations may easily result if the attempt is made to install a loudspeaker system conceived to provide communication over too large a power plant area from a few speaker locations.

Alkyd at 35% is used with 65% silicone in varnishes to shorten the curing time.

Boiler feed pump output will sag somewhat more than twice the percentage drop in frequency when there is a bad system disturbance.

DPA BOSS MANLY FLEISCHMANN has made it official . . .

The men in Washington who control the materials needed for industry expansion have put their approval on a decontrol plan they hope eventually will put them out of business. Here's what the first stages of the plan will mean to the electric utilities:

- **CMP allotment of aluminum and most shapes and forms of steel will be dropped early next year**
- **Allotment of copper will continue as long as the metal is critically scarce**
- **Use of other metals will be limited to some extent by the small copper allotments, but this will be offset by the commitment of mobilization officials to add 32 million kw by 1955**
- **Paper work required in keeping CMP records will be cut back drastically**

Controls Are on Their Way Out

It doesn't show anywhere outside Washington, yet, but materials controls are on the way out.

Defense Production Administrator Manly Fleischmann, boss of the Controlled Materials Plan, made it official the other day. CMP allotment of aluminum and most shapes and forms of steel, he said, probably can be dropped early next year. We may even drop controls on some steel—sheet and strip, particularly—before the end of 1952.

Less Paper Work . . . What this means to the power industry is chiefly a decrease in the mountain of paper work involved in keeping records and filing forms required under CMP. By next January, or shortly thereafter, the industry should be ordering and using aluminum and steel again without awaiting government approval and assistance.

But complete decontrol of materials, though now in sight, still is a long way off. Allotment of copper will continue as long as that metal is critically scarce—at least another year or two. Since copper is so vital to electric power expansion and day-to-day operations, the industry's use of other metals necessarily will be limited to a considerable extent by the proportions of its quarterly allotments of copper.

On the other hand, mobilization officials have more or less committed themselves to an industry expansion program calling for installation of an additional 32 million kw in capacity in 1952-54 (EW, March 24, p 108). That means the industry can expect priority assistance or some other form of government aid in obtaining materials that cannot be secured otherwise.

Depa Playing It Down . . . At Depa, the tendency is to play down talk of material de-control. There are more immediate problems in getting materials to carry on the new expansion program. After these problems are solved, Depa officials say, there will be plenty of time to think about decontrol.

The two NPA divisions which claim allotments for the electric equipment manufacturers are less reluctant to talk about de-control. They are beginning to see that far ahead on some controlled materials now.

For electric utilities, probably the first relaxation of controls will come on minor requirements with the exception of copper. Depa will probably be required to keep a close watch on the progress of the major plant additions, which means keeping tab on the material needed for them. Construction expediting work will probably continue until it is certain that the 32 million kw expansion program can run on its own power.

Since the NPA divisions are claimant agencies for the manufacturers that produce the heavy machinery, these divisions, too, will likely retain fairly rigid material controls until it is apparent they are no longer needed.

Turnabout . . . Talk of easing controls represents a complete turnaround in the thinking of mobilization officials since last December. But you could hardly blame Fleischmann or any of his aides for not foreseeing the switch. Their advance information on arms production schedules indicated that military demands for metals would hit peak in the third and fourth quarters of this year and that there would be no easing of these demands before 1953. Despite increasing production of steel and aluminum, coming in largely during the last half of 1952 and in 1953, military requirements stood to take all the increased supply and more.

What happened was that the armed services scaled down their arms production schedules. You get an idea of the proportions of the cutback in their plans by what happened to their appropriations request for the fiscal year starting next July 1. Last summer, the military brass was talking of a budget for the year of more than $100 billions. First slash changed this to $85-billion. And in December the final cut reduced the total to $52-billion.

New Schedule . . . But it took weeks to translate these proposed spending ceilings into terms of metal requirements. By the time the services came up with their new requirement schedules the first quarter of 1952 was half over. The services had to turn back some of the metal allotted them for the first quarter and a lot more of the metal covered by advance allotments for the second quarter.

DPA and subordinate controls agencies quickly exhausted the first-quarter windfall of materials. Most of the turnback went into a reserve that was largely a paper item. It involved no new allotments. The metal not picked up by the military simply went to industries which would have been unable to cash their own allotments otherwise. Some additional allotments were also issued—to highway, school and church construction, automobiles and other consumer goods.

The controllers now have worked out a pattern for doling out materials originally slated for weapons in subsequent quarters. You can see the way it is shaping up in preliminary decisions on third-quarter allotments. Initial determinations are being hinged on copper requirements. With the exception of those for electric power and a few other approved expansion programs, allotments for new industrial plants still are being held down in cases where they will require considerable copper, either for construction or equipment.

Consumers Out . . . Both copper and aluminum, though a little more is available, are being held out of consumer goods, including electric appliances. That's because additional aluminum producing capacity won't be in operation until later this year. Even then, consumer goods makers in all probability will not get more than half the copper they used before Korea.

When the government stops allocating steel and aluminum next year, it will have to rely on some type of priority system. That's a problem Fleischmann and his staff are wrestling with at present.

To keep faster-moving, more experienced industry from grabbing most of the steel and aluminum, the armed services will have to have some sort of ticket for their requirements. Fleischmann would like to give them a single priority, like the "DO." But he knows he probably will have to do the same for some supporting production, especially for makers of component parts.

Eye on Steel . . . The controllers are virtually certain they'll have to keep close allotment of some forms of steel. Right now it looks as if plates, tubing and rods will be among those forms. Of course, many of the alloying materials also will be kept under wraps—particularly nickel, cobalt, columbium, tungsten, and tantalum. Even at reduced rates of output, military requirements for these steel hardeners look like more than we can meet without allotments.

And how much paper work still will face industry is something else that hasn't been settled. DPA wants to keep tabs on steel and aluminum use for a while longer. First, it has to see that their consumption won't snowball demands for copper. But, more important, it may be necessary to reimpose allotments. It would take only a worsening of the situation in Korea, another crisis like it, or even a long-drawn-out steel strike to force continued allotments of steel and aluminum. That's how finely balanced defense and civilian metal needs appear at the moment.

Snow Swells West's Runoff

Recent snow storms in the West have brightened prospects for a plentiful supply of water for power production and irrigation at several Bureau of Reclamation projects.

The bureau last week gave a run-down of water supply outlook for its major power projects:

Central Valley Project plants are running at 86% of capacity as the bureau draws down Shasta Lake in anticipation of large spring run-offs. Irrigators in a portion of the project are being told to anticipate a full water supply during current season.

Franklin D. Roosevelt Lake behind Grand Coulee Dam is being taken down several feet as the bureau prepares for heavy run-offs on the Columbia.

The same is true of Lake Mead on the Colorado.

Rio Grande project in Mexico and Texas faces an early season drought. Holdover storage water in Elephant Butte and Caballo Reservoir is virtually exhausted. However, a heavy snowpack in the high mountain of the Rio Grande headwaters should yield a good late season run-off.

More Metals for Appliance Makers

- **Bigger allotments are in store for manufacturers as a result of the changed needs of the armed services**
- **Second quarter quotas of scarce materials for civilian goods will be leanest, but then the situation will improve**
- **Washington economists feel companies will be able to find buyers for increased supply of consumer durables**

Consumer goods manufacturers are over the hump on materials shortages —they'll get bigger government allotments of steel, aluminum, and copper from here on out.

Big question now is: Can they sell any more appliances than they're now making? Economists in some mobilizations agencies think they can. Industry has had much time to give the question serious thought.

Until a month or so ago, it looked as if that problem would never arise. The tune Washington was singing on materials for civilian-type hard goods went about like this:

. Metals allotments would hit bottom —a low floor, at that—in the second quarter of this year. They'd be just as tough for the July-September quarter. It was possible, but not probable, there'd be a little more metal after Oct. 1.

Signals Changed . . . But that was before the armed services interpreted the stretchout of arms production into terms of how much metal they would need and when. The new look of their metals needs changed all previous signals on the outlook for consumer durables.

The second quarter remains the leanest, metal-wise, for civilian goods —but not so lean as expected. And each quarter henceforth will be fatter. For example, the controllers are talking of allotting about 10% more steel, aluminum, and copper for durables in the third quarter.

You can get one measure of how tough the controllers were on durables by a look at average allotments to date, in percentages of pre-Korea supplies, for appliances and most major civilian products:

	Fourth Qtr 1951	First Qtr 1952	Second Qtr 1952	Third Qtr 1952 (Est)
Steel..	58%	50%	50%	60%
Copper Wire	54%	40%	35%	40%
Aluminum	46%	35%	30%	40%

What Effect? . . . But cold allotment figures don't tell the whole story of what controls have done to consumer goods production. They don't reflect the metals inventories held by many manufacturers when their use of steel, copper, and aluminum became subject to regulation under the Controlled Materials Plan last fall. The controllers made some allowances for substitutions, but they still don't know exactly how much copper and aluminum producers have replaced with less scarce steel, plastics, and the like. In addition, individual manufacturers have received supplemental allotments from time to time when they were able to make a showing that quarterly allotments worked a "hardship" on them.

But production obviously has fallen off, at least below the record levels of 1950. This drop probably shows up in clearest focus in the Federal Reserve Board indexes of production of major appliances and radios and television. With average 1947-49 output representing 100, FRB indexes show the following 1950 to 1951 dips: Major appliances dropped from 136 to 109; radios and TV fell from 239 to 172.

Preliminary FRB figures for January show each of these categories going up one to two points above the 1951 averages.

Lack of Demand . . . Some controls officials insist that lack of consumer demand, by and large, contributed just about as much to the slippage in durables output as materials restrictions. They point out, for example, that production of most consumer goods hit a peak in the closing months of 1950 or shortly thereafter, then began tapering off. That was weeks before military ordering began to pre-empt substantial amounts of metal and from six to nine months before the inauguration by the government of effective materials controls.

The controllers figure post-Korea panic buying by consumers, which resulted in record durables production but ended quicker, also contributed to the depressed sales of last year. In the last six months of 1950, buyers grabbed for automobiles, appliances, and household equipment. Many of these purchasers loaded themselves down with installment payments.

That's one reason some government economists think durables sales will soon be up to whatever production rate manufacturers can attain. In the 20 months since Korea, most consumers have paid off the last installments on their late-1950 buying splurge. They should be about ready for more heavy buying.

Further, inventories of most durables are approaching the kind of balance that industry and government experts deem "normal." FRB indexes on inventories, which also use 1947-49 averages as a base, show department store inventories hit 140 last October-December, a healthy drop from the 209 of the second quarter of 1951.

A few items still are in excessive supply. As of Jan. 1, for example, manufacturers and distributors had 1.1 million refrigerators on their hands. But there some hard spots even in the extremely soft market for refrigerators. Manufacturers say they can get rid of large models, 9 cu ft and over, about as fast as they can make them. And they are now putting about 25% of their capacity into big boxes—as against approximately 10% in 1949.

May Build Steam Plant

Sacramento Municipal Utility District, which buys power from Pacific Gas & Electric Co, is investigating the feasibility of building a 240,000-kw steam plant. The district's chief engineer and general manager, James E. McCaffrey, said a steam plant might be an "attractive investment for the district" and could be operated in combination with purchases of secondary hydroelectric power. SMUD's contract for purchase of power from PG&E will expire in 2½ years.

CLEAN UP JOB begins in Judsonia, Ark., after a series of tornadoes that struck March 21-22 virtually leveled the town. Trucks and derricks were used to clear away the wreckage. Aluminum light poles were among the few things left standing after the storm had subsided

Twisters Lash Power Systems

Midwest tornadoes batter electric facilities of Arkansas Power & Light Co and Tennessee Valley Authority

The barrage of tornadoes which lashed six southern states March 21 and 22 played havoc with power facilities in many of the stricken areas.

Utility poles were snapped, transmission structures toppled, distribution systems in some towns entirely obliterated, and substations knocked out.

The twisters, accompanied by flash floods in several areas, pounded sections of Arkansas, Tennessee, Missouri, Mississippi, Kentucky, and Alabama.

Arkansas Badly Hit . . . Arkansas was hardest hit by the storms and Arkansas Power & Light Co estimated damage to its system at $500,000. Ten thousand of the company's customers were without service from periods varying from several hours to several days.

Tennessee Valley Authority reported damage to a number of its transmission lines but did not expect the loss to exceed $50,000. The facilities of municipal and co-op customers of TVA also were damaged by the twisters.

Arkansas-Missouri Power Co system was only slightly affected by the storm.

The series of tornadoes struck the southwestern part of Arkansas on Friday March 21 starting at about 3 p.m. Dierks, a small town 110 miles from Little Rock, was the first to be hit by the storm which then cut across the state at a 45-deg angle, following the "tornado" trail of past storms from southwest to northeast.

White County Stricken . . . The fullest fury of the storm was directed against White County in the north central part of the state. It is in this area that the greatest damage to Arkansas Power & Light's system was done.

Two of Arkansas P&L's substations in this area were leveled. The Price substation, two miles east of Searcy, White County seat, was almost demolished. A little farther north the Bald Knob substation was wrecked. The steel switching framework of the substations was mangled by twisters and the transformer bushings were destroyed.

The 11-mile 115-kv line connecting the two substations was the most badly damaged line on Arkansas P&L's system. This section is part of the 115-kv line from Little Rock to Newport. Most of the H-frame structures between the Price and Bald Knob stubstations were overturned and this stretch of the line was isolated so that repairs could be made. Engineers estimated it would take a week to restore the line. Searcy was being served over the line from Little Rock and Bald Knob from Newport.

Distribution Systems Wrecked . . . The distribution system in Judsonia, a town near Searcy, was completely destroyed and about 60% of Bald Knob's distribution system wrecked. The electric supply systems within a 15-20 miles radius of Searcy were badly damaged.

At England, in central Arkansas, lines were knocked down and the distribution substation damaged. The transformers were blown off their platforms.

In damage elsewhere, one mile of 115-kv line was knocked out between Hazen and Carlisle, structures were downed on the 115-kv line between the Moses Plant and McCrory, and part of the distribution system wiped out at Vanndale. Structures were damaged at Marked Tree along the 115-kv line between Parkin and Jonesboro.

Despite the severe damage, restoration of service was made quickly. Two days after the tornadoes first struck the majority of Arkansas P&L's customers were back on the line. Twenty crews of linemen worked around the clock repairing damage.

TVA Lines Hit . . . In Tennessee, a veteran TVA engineer said he couldn't recall when a tornado had caused such widespread damage to the system previously.

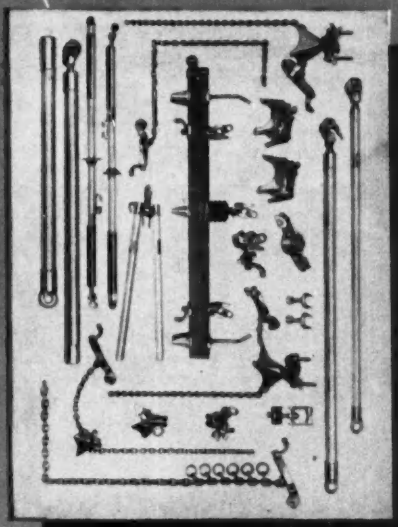
Three 154-kv lines were damaged near Henderson, Tenn., and the town had no power for 13 hours. This was the longest outage in the Tennessee area. The big wind snapped several wood pole H-frame structures. Near Dyersburg, Tenn., a steel tower was partially uprooted and crumpled, and had to be replaced temporarily with an H-frame wood structure

Four of TVA's 44-kv lines and one 69-kv line were damaged. About a half-mile section of each line was hit. Conductors were blown away and poles knocked over.

No TVA substations were hit by the storm. Hardest hit distributors in the TVA area were Southwest Electric Cooperative, Lexington Electric System, Chicasaw Cooperative, Gibson Electric Cooperative, and the town of Bolivar.

On Sunday new twisters damaged a steel tower on the 154 kv line between TVA's Wheeler and Guntersville Dams in north Alabama.

KEARNEY HI-LINE TOOLS PROVIDE MAXIMUM PROTECTION FOR YOUR LINEMEN—



THEY LAST LONGER— REDUCE MAINTENANCE EXPENSE

For many years Kearney Hi-Line tools have been the industry's standard for safety and efficiency in live-line maintenance. Now with the addition of the improved plastic covered hotsticks, Kearney tools are better than ever. These new sticks are multiple laminated Douglas fir, covered with a ⅛" jacket of tough, hi-dielectric plastic.

The periodic drying and refinishing required with varnished wood sticks is not necessary with the new Kearney plastic covered pole—nor is a special "dry box" required for storing them. Plasticks are not only safer—they are more damage resistant—they last longer.

Ask your Kearney Salesman for more specific information—or write for catalog pages.

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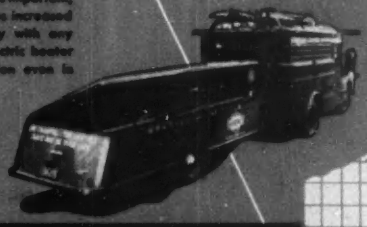
NEW *Streamlined* TOOL TRAILER

The new re-designed Kearney Hi-Line trailer provides greater storage area and, just as important, improved tool accessibility. It features increased "roadability" and maneuvers easily with any type truck. A built-in forced air electric heater keeps tools in dry working condition even in humid climates.

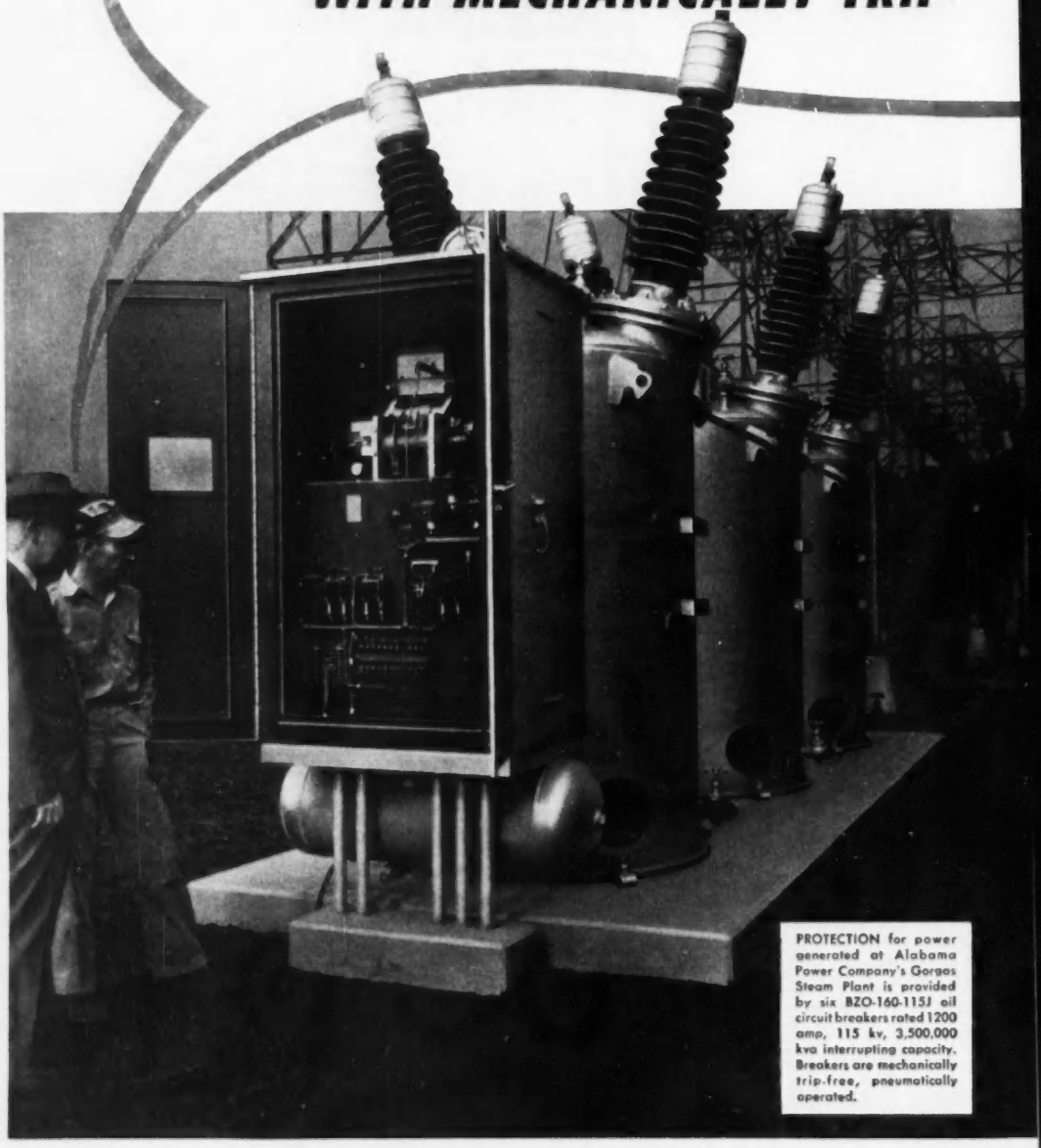


KEARNEY Gives a Little More for a Little Less

through Engineering

Fast, Positive

WITH MECHANICALLY TRIP-



PROTECTION for power generated at Alabama Power Company's Gorgas Steam Plant is provided by six BZO-160-115J oil circuit breakers rated 1200 amp, 115 kv, 3,500,000 kva interrupting capacity. Breakers are mechanically trip-free, pneumatically operated.

Performance!

FREE PNEUMATIC OPERATION

Power OIL CIRCUIT BREAKERS

ELECTRIC POWER is vital today for defense, for industry and to domestic life. Uninterrupted service contributes to continuous production... helps prevent costly shutdowns. Greater concentrations of electric power make it essential that faults be quickly cleared and service instantly restored.

Helping to maintain power stability of systems across the country are Allis-Chalmers power circuit breakers with mechanically trip-free pneumatic operators. These circuit breakers provide:

Positive, High-Speed Opening — that's the function of the mechanically trip-free mechanism! Tripping always uncouples contacts from the closing mechanism... powerful accelerating spring, aided by gravity, drives contacts open. All possible drag is eliminated.

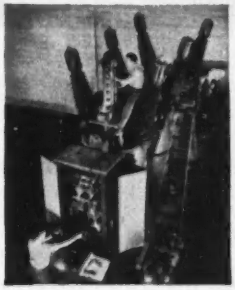
Positive, High-Speed Closing — accomplished with powerful pneumatic operation. Stored energy, enough for at least five closing operations, comes from a self-contained air compressor and tank.

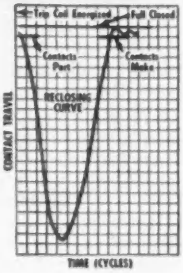
Positive, High-Speed Reclosing — provided by the fast coupling action of the mechanically trip-free mechanism and the fast-acting power of pneumatic operation. Meets the power industry's fastest reclosing requirements.

Over ten years' experience in the field has proven the success of mechanically trip-free pneumatic operation for power oil circuit breakers.

For more information on these power circuit breakers, call your nearby Allis-Chalmers sales office, or write Allis-Chalmers, Milwaukee 1, Wis. Ask for Bulletin 71B6022C.

A-3607





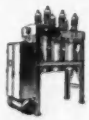
MECHANICAL TESTS supplement electrical tests. Mechanical performance is verified by special test equipment. The man on the breaker shown above is checking a special speed recorder called a Speedograph. With this device contact travel vs time is recorded on a synchronized rotating drum. The graph at right is typical for the first or subsequent reclosures.

ALLIS-CHALMERS

A-C ALLIS-CHALMERS

MECHANICALLY TRIP-FREE PNEUMATIC OPERATOR IS STANDARD EQUIPMENT ON ALL THESE ALLIS-CHALMERS OUTDOOR POWER OIL CIRCUIT BREAKERS

Unitop is an Allis-Chalmers trademark.

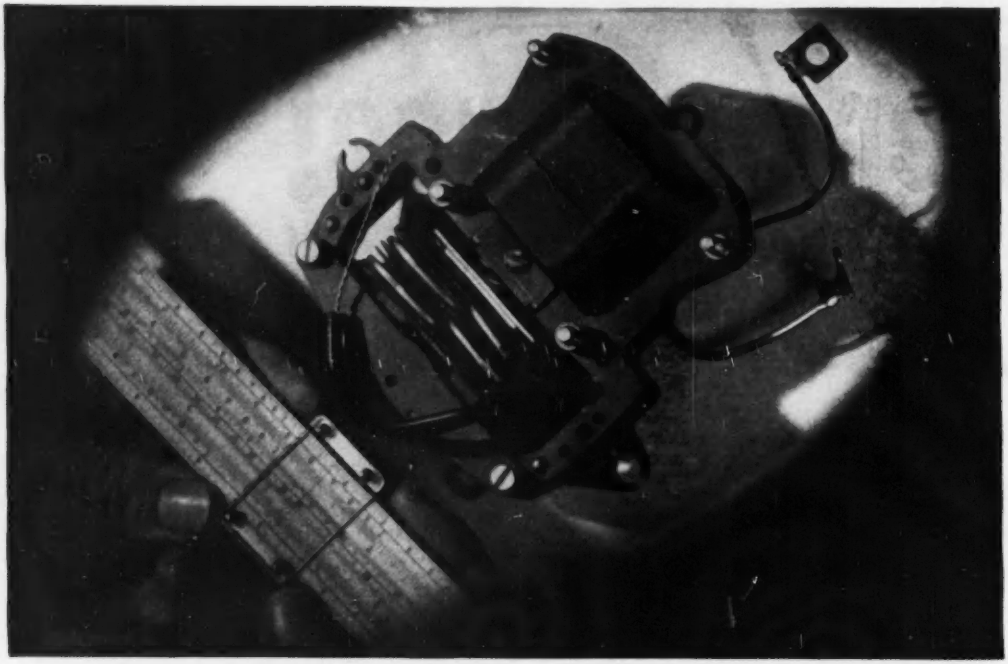


Type FZO-150 *Unitop* breaker 14.4 to 46 kv, 8-cycle opening, 20-cycle reclosing*

Type FZO-151... 69 kv, 5 or 8-cycle opening, 20-cycle reclosing*

Type BZO-160... 69 kv, 8-cycle opening, 115 to 230 kv — 3 or 5-cycle opening with 20-cycle reclosing*

*20-cycle reclosing standard for 600 and 1200 amp breakers



Sangamo J Meters

designed for maximum stability

Sangamo Type J Watthour Meters have a factual record of sustained high accuracy. This high accuracy is no accident. Important electrical and mechanical features have been combined with skilled manufacturing techniques and the latest statistical quality control methods in order to embody the desired quality characteristics into these meters.

With maximum stability as the principal design goal, liberally designed potential and current elements combine to insure accurate registration from the lightest loads to loads well over four times the nominal current rating.

The exceptionally high driving power of the Sangamo J Meter is another important factor in assuring its stable registration. There is ample torque in the moving system so that at light loads increases in friction rarely affect registration.

Only Measured Facts are Known Facts

SANGAMO
ELECTRIC COMPANY
SPRINGFIELD, ILLINOIS

Sangamo J Meters have proved their ability to meet today's requirements and tomorrow's anticipated loads with sustained accuracy, economy of maintenance and troublefree performance.

SM52-4

Nevada Seeks CVP Power

River commission negotiates with USBR for purchase of Central Valley energy as California protests loudly

The controversy resulting from southern Nevada's power shortage boiled over into California last week.

In Las Vegas, an indignant group of residents fighting a proposed ban against new or additional electric space heating loads cooled off when the Public Service Commission lifted a temporary order against such loads and turned down the Southern Nevada Power Co's application for a permanent ban.

Over in California, however, temperatures went up as the Nevada Colorado River Commission, seeking ways to ease the shortage, started negotiations with the Bureau of Reclamation for purchase of 150,000 kw of Central Valley Project power.

Governor Protests . . . California's Gov Earl Warren protested any export of power to Nevada, commenting that while he would like to help out, California has a serious power problem of her own.

California legislators started drafting a bill which would give the California Public Utilities Commission power to prevent CVP power from going out of the state if there is a need for it at home.

The Nevada PSC order against Southern Nevada Power, ruling that the company presently had enough power to handle space heating needs, asked the company to report to it periodically on its progress in acquiring new generating equipment or on the purchase of additional power to meet the needs of the public. SNPC, it noted, "is a utility and it is bound to meet the demands of its cusotmers."

Southern Nevada Power officials had said: "Under allocation of power sent by the Colorado River Commission to the company there is sufficient electricity to serve the requirements of our existing customers, including those presently using space heating, as well as lighting, cooking and water heating loads of new customers until 1956. If new and additional space heating loads were accepted, the reserve electrical capacity would be depleted by January, 1953."

Residents Bitter . . . Las Vegas residents affected by the ban had been bitter in their protest, sponsoring a series of newspaper advertisements to outline their opposition.

Criticism had flared for three principal reasons: (1) The ban was put into effect without a public hearing, (2) an emergency measure was taken when the emergency was actually three years away, (3) it was claimed that the company had known for the past three years that a shortage was developing and yet had failed to make proper arrangements to provide for additional generating capacity.

USBR View . . . At the Bureau-Colorado River Commission conference, Richard L. Boke, Sacramento regional director, said:

"The Central Valley Project was built by funds contributed by all of the states of the Union and under reclamation law we cannot deny consideration for CVP power to any preference agency."

He had previously commented that many potential California customers had shown less active interest in CVP power than Nevada.

The commission has indicated it would like to see the additional power made available to Nevada at Hoover Dam provided equivalent power could be exchanged between CVP and Pacific Gas & Electric Co and between PG&E and Southern California Edison Co.

"Any such arrangement would, of course," Boke said, "require not only an agreement between the commission and Reclamation, but agreement with the two utility companies."

AEC Releases Patents

Atomic Energy Commission has released 23 patents for public use. Licenses for the patents, owned by the U. S. government, will be granted to applicants on a non-exclusive, royalty-free basis. Among the patents released by the commission are one for regulated power supply (Patent No. 2579,223) and one for a high voltage regulator (Patent No. 2585,679). Applications should be addressed to Chief, Patent Branch, Office of the General Counsel, AEC, Washington 25, D. C.

A. E. SILVER

Lamme Medalist

Arthur E. Silver is honored by AIEE for his studies on rural electrification

The American Institute of Electrical Engineers has awarded the 1951 Lamme Gold Medal to Arthur E. Silver, retired consulting engineer for Ebasco Services, Inc. The medal will be presented at the AIEE general meeting at Minneapolis June 23.

Silver is being honored "for his pioneering of rural electrification by designing the simplified farm-type transformer combined with high voltage, long span, and common neutral line construction."

Fruitful Studies . . . Studies began by Silver two decades ago are credited with the development of a "farm transformer" with built-in accessories that lowered cost of electrical transmission to rural areas.

A native of Dexter, Maine, Silver was graduated from the University of Maine in 1902. He worked for General Electric Co at Schenectady, N. Y. for two years and then went to Raleigh (N. C.) Electric Co where he had charge of the meter department.

In 1910 Silver joined Electric Bond & Share Co. Nine years later he was made consulting engineer in charge of all electrical engineering problems for clients. When the service activities of the company were transferred to the newly organized subsidiary, Ebasco Services, Inc, Silver became consulting engineer, a position he held until his retirement in 1948. He now lives in Montclair, N. J.

TREE PLANTING crew is busy at work while H. M. Montrose, left, vice president and division manager of Wisconsin Public Service Corp, looks on. The utility started its reforestation program in May 1950 and since that time has planted 80,000 trees on company land

Thousands of Living Monuments

Acres of trees are planted by a group of utilities in Wisconsin and Michigan in a vast reforestation program

Thousands of stripling pines in the Wisconsin-Michigan area soon will grow up to become lofty monuments to the public spiritedness of the utilities that planted them. Started on a small scale a number of years ago, the tree planting program carried on by a group of utilities is being widely extended today.

One of the leaders in the tree planting program is Wisconsin-Michigan Power Co. The company's earliest reforestation project dates back to the 1930's but it was not until 1942 that its regular planting program was inaugurated.

At that time the utility started planting red pine seedlings along the Menominee River in Holmes Township in Michigan following the method of the U. S. Forest Service. Trees were planted by hand in a plowed furrow with a planting bar. About 90,000 seedlings were planted and today they have grown to an average height of 5 ft.

Form Organization . . . Envisioning an even broader program, Wisconsin-Michigan, several other utilities, and 11 paper companies formed an organization known as "Trees for Tomorrow Inc" to expand reforestation work. Participating utilities in addition to Wisconsin-Michigan are Wisconsin Public Service Corp, Northern States Power Co, and Lake Superior District Power Co.

Up to the present, Trees for Tomorrow has distributed 4 million trees. It furnishes technical supervision of foresters for those interested in large-scale tree planting. In addition, the organization awards forestry scholarships and has established 34 school forests and eight memorial forests.

It has prepared forest management plans for 91,000 acres of privately owned woodlands and has provided workshop programs for more than 8,000 persons who have attended sessions at its camp at Eagle River.

Scholarships . . . A $1,200 forestry scholarship is awarded each year to

a high school graduate who plans to make forestry his career. The organization also gives a $200 4-H Club scholarship to a boy who has shown leadership in the club's forestry projects.

At its camp, Trees for Tomorrow holds three-day workshops for high school boys and girls. Last spring 767 students from 56 schools attended the sessions on school time.

The utilities also have encouraged school children to visit their reforestation projects and particularly to take an active part in actual tree planting.

Participation in reforestation activities is not limited to children. Trees for Tomorrow sponsors workshops for adult groups and the power companies have set up a yearly institute meeting at the Trees for Tomorrow camp for selected groups of employees interested in learning about forests and their management.

Acres of Trees . . . Wisconsin-Michigan's present program calls for planting 100,000 trees a year. Hand planting has given way to machine planting to make this goal possible. To date the company has planted 183 acres. New goal calls for planting 85 acres annually on the company's backwater lands.

Wisconsin Public Service Corp has completed a forest management plan for 22,000 acres and has planted 80,000 trees. In 1951 Northern States Power planted 10,000 trees and Wisconsin Valley Improvement Co, made up of power companies and paper mills, 40,000. Lake Superior District Power, following a survey by Trees for Tomorrow in the fall of 1951, plans to plant 40,000 trees this spring.

INSPECTING TREES planted seven years ago is the task of J. A. Schooley, left, and Folke Becker of Trees for Tomorrow. Smiles on their faces indicate that trees are doing well

ONE OF THE FIRST utilities to become interested in reforestation was Wisconsin-Michigan Power Co. The company inaugurated a regular tree planting program in the early part in 1942

SCHOOL CHILDREN are enlisted to help with the business of planting trees. Boy in front is getting some pointers from an expert

AFTER PLANTING BEE, sponsored by Wisconsin-Michigan Power, the kids get a change to cook their own chow and enjoy the outdoors

PCEA PRESIDENT Emery D. Sherwin, left, welcomes John W. Landis, AEC reactor engineer at Engineering and Operating Section session. Alf Hansen, conference chairman, looks on

Leading PF Operation . . .

. . . on Pacific Gas & Electric Co system is discussed at annual conference of PCEA's Engineering and Operating Section

Operation of steam turbine-generators at leading power factor to buck system voltage during light load periods is becoming an accepted practice with Pacific Gas & Electric Co.

This was reported by E. F. Kaprielian, PG&E, at the annual conference of the Engineering and Operating Section of Pacific Coast Electrical Association held recently in Fresno, Calif.

Extensive tests under actual conditions, he said, have shown that operation at 90-95% power factor leading is stable and does not result in dangerous heating on the generator. Tests on a standard 100-Mw unit established that critical heating on the unit during operation at leading power factor occurs on the end turns. Rate of temperature rise during underexcited operation tended to taper off with time, and increasing hydrogen pressure from ½ to 15 psi reduced end-turn temperature rise approximately 20 deg. When terminal voltage was lowered 5%, end turn heating increased about 6%; a decrease of 10% in kva output decreased end turn heating about 20%.

Kaprielian added that tests had shown that large induction motors (2000 hp) could be operated without dangerous overheating on a duty cycle requiring up to three starts in a 15-minute period.

Easy portability of equipment, consistent and easily interpreted results, and non-destructive nature of the tests were some of the advantages of high voltage dc testing of insulation listed by G. L. Hill, PG&E. He told the hydro-generation group that high-voltage testing equipment capable of testing the largest generators on his company's system could be carried on the back seat of the standard passenger auto.

He showed a series of curves plotted from data taken on a wide variety of windings indicating a definite correlation between lowered resistance to high voltage dc and progressive deterioration of the insulation. He pointed out the hyperbolic nature of the curve of dc volts impressed vs microamps, and said the vertical asymptote of this curve intersects the horizontal axis at a voltage which corresponds closely to the peak value of the ac breakdown voltage.

Increases in turbine efficiency ranging from 3-6% for impulse units following modernization in conjunction with a change from 50 to 60 cycle operation were reported by T. C. Stavoort, Southern California Edison Co.

He said that experience on 49 units of various sizes which were modified during the changeover showed that efficiency of impulse units could be stepped up to as much as 90% by applying advances in the art of turbine design. Results of modernizing Francis-type turbines were not so gratifying, usually amounting to no more than 1% gain in efficiency, he said. He said modernization of old impulse units could be justified even where the frequency change was not involved.

AEC Progress Report

Reports of the four utility-industry teams commissioned a year ago by Atomic Energy Commission to study power generation and industrial applications of nuclear energy are due about June 15th, John Landis of the AEC told the PCEA conference. Analysis of the reports and preparation of declassified information for release to the public would require about three months additional, he estimated.

Landis said that if the market for plutonium held up, electric power generated as a by-product of plutonium production could probably be sold competitively with coal or oil-generated power in the next few years.

Section of Grid Completed

The first section of the British Electricity Authority's 275-kv super-grid (EW, May 15, 1950) between the new Staythorpe power station and Barnby Moor in Yorkshire has been completed. It is the first 275-kv overhead line to be erected in England and the first to use duplicate conductors. The line will reinforce the existing 132-kv national grid system.

Southern California Edison serves a multi-billion dollar area

Dynamic Southern California runs the gamut of industrial production from A (abrasives) to Z (zinc, refined and fabricated) to make up a billion dollar annual volume of manufactured goods. In addition, it can boast a billion dollar harbor commerce and multi-million dollar agricultural, refining and motion picture industries.

The Southern California Edison Company plays an important part in all these industries by supplying the vital electric power that is their life blood.

Wagner Power Transformers perform an essential task in this tremendous power supply operation.

Wagner transformers are an important part of the equipment of many power companies, just as they are a vital part of the power equipment of many of the industries served by these companies.

Wagner engineers are qualified to specify the correct transformer for *your* requirements as well. Consult the nearest of our 31 branch offices or write to

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6434 Plymouth Ave., St. Louis 14, Mo., U. S. A.

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ELECTRIC MOTORS • TRANSFORMERS
INDUSTRIAL BRAKES
AUTOMOTIVE BRAKE SYSTEMS—AIR AND HYDRAULIC

Safest TO WORK HOT

Attachment of an O-B Clamptop insulator to the conductor is made with a compact clamping member compressed by two hex nuts. This member, smaller than a man's fist, is the only charged portion when making a hot stick installation. It is handled by a simple socket wrench that offers a minimum chance of slipping or otherwise going out of control. Final installation is stronger than the best hand-made tie, and permanent . . . Compare this with installing a hot tie. The end of the tie wire describes a large circle through the air, in whose area full line potential exists. The end of this tie wire may snap or spring out of control. And when installed, a weak connection of no real permanence has been made . . . Since hot line construction and maintenance is growing with the demand for power continuity, prepare for doing this faster, better, and safer by building with O-B Clamptop insulators; either conventional pintypes or posts.

Ohio Brass

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4137 M

INDUSTRIAL RELATIONS

Problems Facing Foremen . . .

. . . viewed differently by executives and supervisors, results of a survey by Research Institute of America show

Executives and foremen don't see eye to eye on the major problems confronting supervisors. This fact is revealed in a survey just concluded by the Research Institute of America, 292 Madison Ave., New York 17, N. Y., which shows that supervisors feel their fourth most serious problem is "working under pressure," while their bosses rank it thirteenth in a list of topics on which they would like to see their foremen given guidance.

Agreements and Differences . . . "Of course, there are many areas of agreement in the preferences and interests of the two levels of management," the institute observes, "but the points of difference cut across the basic areas of supervisory concern—human relations, administration, economic education."

Identical questionnaires were answered by 2,000 executives and a similar number of supervisors, covering the subjects they considered most important for the latter.

Both areas of management gave a high rating to the problem of building initiative among work forces. But the Research Institute survey also reveals that only 65% of those on the top level feel their supervisory personnel need guidance on how to get along with the boss, while among supervisors, almost 80% feel they need it.

"This is not unexpected," the institute says, because "the subordinate is more concerned about his relationship with his superior than the latter is likely to be. Such differences in outlook can't be erased and they must always be taken into account."

Further Disagreement . . . In addition to the topic of working under pressure, here are four other important subjects on which there was significant variation between frontline and higher management as indicated by the Research Institute survey:

1. "How to give orders. How do you get willingness to execute them? What about energetic and accurate performance?" This subject was ranked first by top management, fifth by supervisors.

2. "How to read employees' minds. The supervisor should know what's eating the employees; symptoms of mounting irritation; their understanding of policies, instructions, assignments—and most important, how to draw out employee reactions and suggestions." This was rated first by supervisors, fourth by higher management.

3. "How to watch costs. Top management does it always. How can supervisors do it in their own departments?" Management rated this one third, supervisors put it in seventh place.

4. "Business finance. Where the company gets its money—sales, financing from private leaders; what it does with its money, labor, material, and equipment costs; profits and where they go." Top management ranked this topic tenth, while supervisors put it way down in 20th place.

The Research Institute survey concludes by declaring that the "failure to think alike is not evidence of a communications breakdown — though that may be a factor in some companies. Even with the best interchange of information and opinion, supervisors are bound to develop their own unique set of values because they are subject to a distinctive set of pressures, different from higher management's."

Master Maintenance Men Not Supervisors—NLRB

Master maintenance men in electric utilities are not supervisors under the Taft-Hartley Law, the National Labor Relations Board has decided in including them in a bargaining election covering production and maintenance workers. It ruled that master maintenance men of the Indiana & Michigan Electric Co, may if they wish, be represented by the AFL United Brotherhood of Carpenters and Joiners.

The company wanted the master maintenance men excluded as supervisors because they had power to recommend discharge and discipline of employees, but there was no evidence they had ever made any such recommendations, the board said.

The union and the company also disputed the eligibility of stores attendants and janitors who clean nonproduction areas. Stores attendants are essentially factory clericals, the board said, and excluded them along with the rest of this group because the union and the company had both agreed not to include them in the maintenance and production unit.

Janitors, regardless of place of work, belong to a production and maintenance unit, the board held, as it has previously.

Salt River Power Units Grant 5.14% Pay Boosts

Pay increases for 1,200 employees have been granted by the Salt River Valley Water Users Association and the Salt River Power District with headquarters at Phoenix, Ariz. The average is 5.14%. Negotiations were with Local 226, International Brotherhood of Electrical Workers, AFL.

The agreement provides a cost-of-living increase with revision Jan. 1 and July 1 based on the Oct. 15 cost-of-living index figures.

LABOR BRIEFS

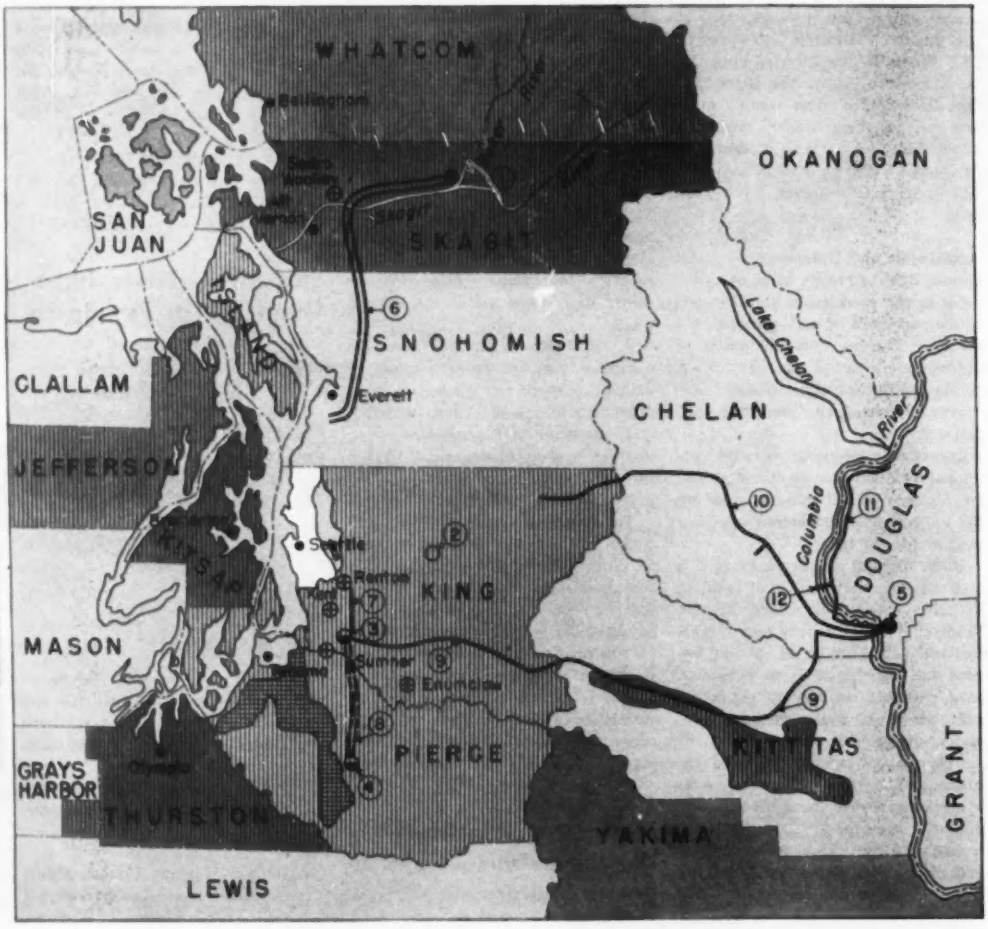
Shawinigan Water & Power Co and Union of Office Employees have agreed to wage increases, ranging from $3.25 to $10 a week, an improved arrangement for vacations with pay, and a revision of the promotion policy.

Chelan and Douglas County Public Utility Districts and International Brotherhood of Electrical Workers, AFL, have agreed on a 19¢ an hour increase for linemen.

An interesting article on the union shop problem entitled "Compulsory Union Membership and Public Policy," has been prepared by James R. Morris of University of Illinois. For a copy write Commerce and Industry Association of New York, Inc, 233 Broadway, New York 7, N. Y.

Public Power Agencies Are Menacing

Washington utility is faced by 12 condemnation actions filed by PUD's and municipalities. President McLaughlin says doing business under these conditions is like living in a house while a gang of workmen is busy demolishing it



Puget Sound P&L

Power Plants and Transmission Lines Under Condemnation

	Power Plants Capability KW
1. Baker River Hydro Plant	40,000 (a)
2. Snoqualmie Falls Hydro Plant	22,000 (f)
3. White River Hydro Plant	60,000 (b) (e)
4. Electron Hydro Plant	24,000 (c) (e)
5. Rock Island Hydro Plant	80,000 (d)
	Transmission Lines
6. Baker River—Beverly Park	110 kv lines (a)
7. Renton to White River	110 kv line (b)
8. Electron to White River	55 kv lines (c) (e)
9. White River to Rock Island	110 kv line (d)
10. Rock Island to Skykomish	110 kv line (d)
11. Rock Island to Chelan	110 kv line (d)
12. East Wenatchee to Wenatchee	110 kv line (d)

Under condemnation by

(a) Skagit County PUD
(b) Kitsap County PUD
(c) Thurston County PUD
(d) Chelan County PUD
(e) City of Tacoma
(f) City of Renton

R.E.A.s, CO-OPS, Mutuals

(Not Included on Map)

	Approximately Number of Customers
ALDER MUTUAL LIGHT CO. Pierce County	75
ELMHURST MUTUAL CO. Pierce County	955
GUEMES ISLAND CO-OP ASSN. Skagit County	100
LAKEVIEW LIGHT & POWER CO. Pierce County	1,625
LOVELAND MUTUAL CO. Pierce County	705
MUTUAL POWER & LIGHT ASSN. (REA) King County	80
OHOP VALLEY MUTUAL LIGHT & POWER CO. Pierce County	340
ORCAS POWER & LIGHT CO. San Juan County	1,320
PARKLAND LIGHT & WATER CO. Pierce County	1,420
PENINSULA LIGHT CO. Pierce County	3 000
Total	9,620

Cities and Towns in Service Area Which Operate Municipal Electric Systems

Generate Own Power Supply	1950 Census
SEATTLE	467,591
TACOMA	143,673
Purchase Power from Publicly Owned System	
ELLENSBURG	8,430
MILTON	1,374
EATONVILLE	1,048
STEILACOOM	1,233
FIRCREST	1,459
Purchase Power from PSP&LCo.	
BLAINE	1,693
SUMAS	658
PACIFIC CITY	755
SOUTH CLE ELUM	442

Puget Sound Power & Light Co serves all or parts of 11 counties in northwestern Washington. In 1947 it had electric operating revenues of $26,423,940, net income of $4,431,324, and delivered 2,132,506,066 kwhr to 273,605 customers. In 1951 it had electric operating revenues of $20,315,802, net income of $3,538,308, and delivered 1,797,042,276 kwhr to 164,092 customers.

This retrogression is due to one thing only. Puget is being torn apart—just last year Seattle City Light took a big slice of its territory. Here again is the story of the electric utility industry in Tennessee and Nebraska. This is the story of an investor-owned company trying to carry on while 12 condemnation suits, which would end its corporate existence, hang fire in the courts. This is the story that the industry should hear much as Pres. Frank McLaughlin told it in the 1951 annual report.

Like Living in a House Being Demolished . . . In order to appreciate the extent of the "weird confusion" and the "paralyzing uncertainty" in the company's situation, one would have to undergo the nerve-wracking ordeal of a day-to-day living with it. Perhaps the best way for you to get the "feel" of the situation is to imagine you're living in a house while a gang of workmen is busy demolishing it.

By the way of background you should know that:

1. In the heart of Puget's territory are the large public power systems of Seattle, Tacoma, and Snohomish PUD.

2. Puget's service area is surrounded by operating PUD's.

3. There are PUD's in eight of the 11 counties in which the company furnishes service or owns substantial property, and six condemnation actions are pending.

4. Numerous cities (principally in counties without PUD's) have taken steps toward municipal ownership, and six have filed condemnation suits.

5. The federal government dominates the power supply field, and its transmission system blankets the region.

6. The state has broad powers as to engaging in the electric power business.

7. About 70% of the population of western Washington obtains electric service from public agencies.

Laws Are Vicious and Barbaric . . . The state has vicious and barbaric laws which permit public agencies to condemn piecemeal an integrated private electric utility. As a consequence, over half the company's distribution properties, and all its major hydro plants (capability about 225,000 kw) are now under condemnation. Fantastic as it seems, this is stark reality and not fiction.

As things stand today, no one can predict as to how or when Puget's property will be liquidated. The company will continue to oppose vigorously dismemberment of its system, and it is hoped that public agencies will not activate their condemnation actions.

For the industry one might add to President McLaughlin's comment that the most important threat to the company is not a condemnation suit but a purchase offer by seven PUD's (Chelan, Jefferson, Kitsap, Skagit, Snohomish, Thurston, and Whatcom) to acquire the entire Puget Sound system (EW, March 24, p 111). This would keep the system intact if all area municipalities would agree. But so far the PUD's have been unable to solve the financial problem. And there are many opponents to this deal which would put one of the nation's great private companies in the hands of public power.

MEETINGS

AIEE Plans District Meetings

Symposium on hydroelectric developments on Niagara and St. Lawrence Rivers is planned for Northeastern session

During the month of April the American Institute of Electrical Engineers will hold two district meetings and, in addition, will help sponsor a welding conference.

Research, development, and utilization of electrical energy will be the theme of the Southwest District Meeting to be held April 15-17 at the Jefferson Hotel, St. Louis, Mo. Sixteen technical sessions and symposiums have been planned on communications, power system protection, engineering education, system operation, computing devices, electrical machines, transmission and distribution, science and electronics power stations, and industrial power utilization.

AIEE Head to Speak . . . F. O. McMillan, president of AIEE, will talk on "Our Heritage from Engineering Education." I. T. Monseth, manager of the Southwestern Engineering and Service Division, Westinghouse Electric Corp, is chairman.

The Southwest District includes the states of Missouri, Arkansas, Louisiana, Kansas, Oklahoma, Texas, and New Mexico.

Two subjects of interest to residents of New York State and the New England states will highlight the Northeastern District Meeting scheduled for April 30-May 2 at Arlington Hotel, Binghamton, N. Y. They are hydroelectric developments on the Niagara River at Niagara Falls and the St. Lawrence River near Massena, N. Y.

Controversial Developments . . . The Niagara-St. Lawrence symposium will consider the engineering aspects of these hydroelectric developments. According to W. W. Perry, meeting chairman, prominent U. S. and Canadian members will present papers on this subject.

Technical sessions also will deal with all phases of electrical engineering with particular emphasis on power, transmission, and distribution.

New York State and the New England states make up the district.

Set for April 16-18, the Third Annual Welding Conference will be held at Rackham Memorial Bldg. Detroit, Mich. The conference is sponsored jointly by the AIEE, the Detroit section of the American Welding Society, and the Industrial Electrical Engineers Society of Detroit.

The program for the conference will include presentation of these papers: (1) New devices for measurement of welder voltage drops on a power system, (2) power supply for resistance welding machines — the power company's viewpoint, and (3) a new three-phase welding system for welding of aluminum.

C. M. Clark, Duquesne Light Co, is chairman of the meeting.

IES Parley April 6-8

The Southwestern Regional Conference of the Illuminating Engineering Society is slated for April 6-8 at Hotel Tulsa, Tulsa, Okla. Technical sessions will include talks on: (1) Analyzing lighting costs by E. A. Linsday, General Electric Co's Lamp Division; (2) vapor light sources by E. W. Beggs, Westinghouse Electric Corp's Lamp Department; and (3) lighting progress in the Southwest by H. G. Hrivnatz, Houston Power & Light Co.

Meter Conference Set

The 27th annual short course meter conference of the Southeastern Metermen's Association will be held at the University of Florida, Gainesville, April 7-11. It will be devoted to electric meters and their application, testing, and maintenance.

Indiana Group to Meet

"Adventures in Research," a science show, will be presented by Westinghouse Electric Corp at the 12th annual Young Men's Utility Conference scheduled to be held April 3-4 at Van Orman Hotel, Fort Wayne, Ind. The Indiana Electric Association is sponsoring the conference.

CALENDAR

Tennessee Valley Public Power Association
Annual Meeting, Peabody Hotel, Memphis, Tenn., March 31-April 1.

★Edison Electric Institute
18th Annual Sales Conference, Edgewater Beach Hotel, Chicago, March 31-April 3; Electrical Equipment-Prime Movers Committee, Edgewater Beach Hotel, Chicago, May 5-6; Association of Edison Illuminating Companies Meter-Service Committee, Edgewater Beach Hotel, Chicago, May 5-7; Transmission-Distribution Committee, Edgewater Beach Hotel, Chicago, May 6-7; Hydraulic Power Committee, Edgewater Beach Hotel, Chicago, May 6-7; Purchasing Stores Committee, Roosevelt Hotel, New Orleans, La., May 11-14; Accident Prevention Committee, Indianapolis Athletic Club, Indianapolis, Ind., May 22-23.

Missouri Valley Electric Association
Engineering Conference, Hotel President, Kansas City, Mo., April 2-4.

Indiana Electric Association
Young Men's Utility Conference, Van Orman Hotel, Fort Wayne, April 3-4.

Maryland Utilities Association
Lord Baltimore Hotel, Baltimore, April 4.

Illuminating Engineering Society
Southwestern Regional Conference, Hotel Tulsa, Tulsa, Okla., April 6-8; Southern Regional Conference, Hermitage Hotel, Nashville, Tenn., April 20-22; Canadian National Conference, Hotel General Brock, Niagara Falls, Ontario, Can., April 30-May 2; Great Lakes Regional Conference, Hotel Statler, Cleveland, Ohio, May 5-6; East Central Regional Conference, Webster Hall Hotel, Pittsburgh, Pa., May 22-23; Northeastern Regional Conference, Hotel Preston, Swampscott, Mass., June 19-20.

Southeastern Metermen's Association
Meter Conference, University of Florida, Gainesville, Fla, April 7-11.

American Institute of Electrical Engineers
Southwest District Meeting, Jefferson Hotel, St. Louis, Mo., April 15-17; Welding Conference, Rackham Memorial Bldg., Detroit, Mich., April 16-18; arranged jointly by American Welding Society, Detroit Section, and Industrial Electrical Engineers Society, Detroit; Northeastern District Meeting, Arlington Hotel, Binghamton, N. Y., April 30-May 2; Summer General Meeting, Hotel Nicollet, Minneapolis, Minn., June 23-27.

Pacific Coast Electrical Association
Administrative Services Section Conference, Hollywood-Roosevelt Hotel, Hollywood, Calif., April 17-18; Business Development Section Conference, Hotel Huntington, Pasadena, Calif., April 24-25.

Pennsylvania Electric Association
Spring Meeting Motor Committee, Hotel Yorktowne, York, Pa., April 17-18; Communications Committee, Americus Hotel, Allentown, Pa., May 1-2; Spring Meeting, Relay Committee, Lawrence Hotel, Erie, Pa., May 8-9; Electrical Equipment Committee, Hotel Roosevelt, Pittsburgh, Pa., May 15-16.

Southeastern Electric Exchange
Annual Conference, Boca Raton Hotel, Boca Raton, Fla., April 21-23.

American Public Power Association
Spring Convention, Hotel Olympic, Seattle, April 29-May 1. Joint Meeting with Northwestern Public Association, April 28.

National Electrical Manufacturers Association
4th International Lighting Exposition-Conference, Industrial-Commercial Lighting Equipment Section, Cleveland Auditorium, Cleveland, May 6-9.

Northwest Electric Light & Power Association
Engineering-Operation Section, Rainbow Hotel, Great Falls, Mont., May 7-9; Business Development Section, Chinook Hotel, Yakima, Wash., May 12-14; Personnel Section, Vancouver Hotel, Vancouver, B. C., May 19-21; Accounting-Business Practice Section, Medford Hotel, Medford, Ore., May 22-23.

C.I.G.R.E.
(International Conference on Large Electric High-Tension Systems). 14th Biennial Session, Paris, France, May 28-June 7.

International Organization of Standardization
Triennial Meeting, Columbia University, New York, June 9-21.

★ Addition this week.

can't rattle!
L-M's new
GUY WIRE
PROTECTOR
clamps guys firmly
can't twist!
1. Good tight anti-rattle hooks grip any strand from ¼" to ½" firmly and permanently.
2. Body is 18-gauge steel, heavily L-M hot-dip galvanized to assure long-lasting protection.
3. Rounded edges add rigidity and safety. No rough edges to cut hands or snag clothes.
4. Long 30-inch cutaway at bottom permits putting the protector over anchor rod and two 6-inch clamps—a unique L-M feature.
5. Bottom clamp conveniently tightened with bolt on the side of protector. Grips any size from ¼" strand to 1" anchor rod. No loose parts to fall out.

L-M guy wire protectors offer extra features for safety and savings. Large size, fully rounded design, and bright L-M galvanizing assure high visibility. Design speeds up the installation. Generous, easily accessible clamping assures a firm grip — it's almost impossible for the protector to rattle or rotate. In 7′ and 8′ lengths.

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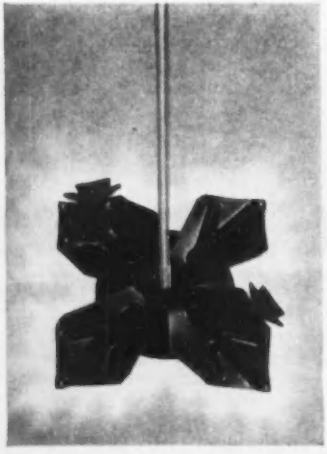
LINE MATERIAL

Line Construction Materials

Complete Coordinated Equipment for All Distribution Requirements

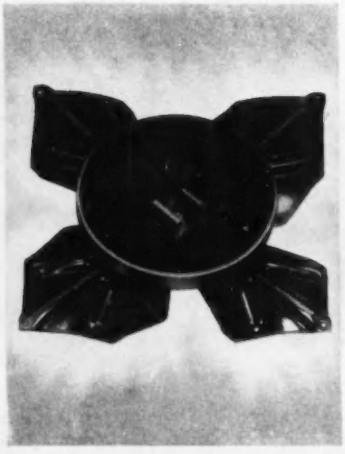
FOR FULL INFORMATION on these and other L-M Line Construction Materials, ask the L-M Field Engineer—or write Line Material Company, Milwaukee 1, Wis. (a McGraw Electric Company Division).

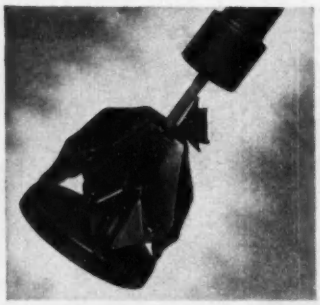
Two-piece design . . . The four blades are formed of a single piece of steel, and are held to the base plate by four small bolts, which simply shear off by tamping. The center hole is extruded downwards. This extrusion provides a bearing surface against the rod to prevent binding; it reinforces the tamping area; and it provides an audible signal when the extrusion strikes the base, indicating full expansion.



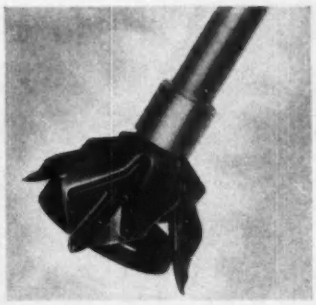
Top view . . . Notice the additional area inside the center of gravity of two opposed blades which gives utmost area for increased holding power, without sacrificing balance of the anchor.

Base plate . . . Heavy steel, with skirted edge to prevent deformation. A nut retainer strap welded to the underside reinforces the hole so that the nut cannot pull through the base plate.





Anchor closed . . . Notice the large square tamping area, and the wide hinge sections which keep the blades from twisting if a stone is encountered while the anchor is being expanded.



Partly open . . . Arched, shovel-shaped blades slide into the earth with a minimum of soil disturbance. Heavy ribs on the underside decrease friction between blades and base plate.

Fully expanded . . . A large percentage of the expanded area is in undisturbed earth. Therefore load can be applied to the anchor immediately after installation, with little danger of creepage.

L-M's New 4-Way Pressed Steel Anchors Designed for Exceptional Strength

L-M has recently completed an extensive series of tests that reveal exceptional strength and holding power in the new 4-Way anchors.

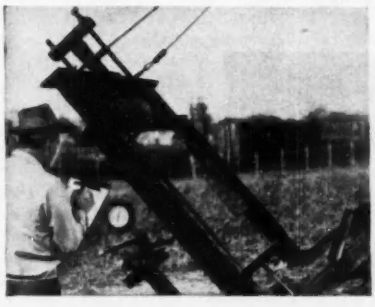
These anchors are easy to install. They have ample holding power above their nominal ratings. There is a generous safety factor in mechanical strength of all parts. And the cost is low!

The design offers many desirable features. A large square tamping area is well reinforced by the downward extrusion of the anchor rod hole, which also provides a bearing area against the rod. Arched, pointed blades slide into the earth without disturbing it, permitting application of the load right after installation. Heavy ribs reinforce the blades and reduce friction against the base plate during expansion. Nut retainer strap reinforces the base, and keeps the nut from pulling through. All three sizes are REA-accepted.

For details and samples ask the L-M Field Engineer; or write Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).

Available in Three Sizes

Catalog No.	20002681	20002682	20002683
Expanded Area, square inches	110	125	132
Nominal Holding Power Class, pounds	6000	8000	10,000
Diameter, closed, inches	8	8	8
Anchor Rod Diameter, inches	⅝, ¾	⅝, ¾	1
Minimum Strength of anchor without deformation, pounds	16,000	21,000	24,000



Hydraulic lift mounted on U-shaped steel frame with pump and pressure gauge for recording the pounds of pull applied to anchor rod. Tests at vertical and 45° angle showed ample mechanical strength of all parts, well balanced against holding power.

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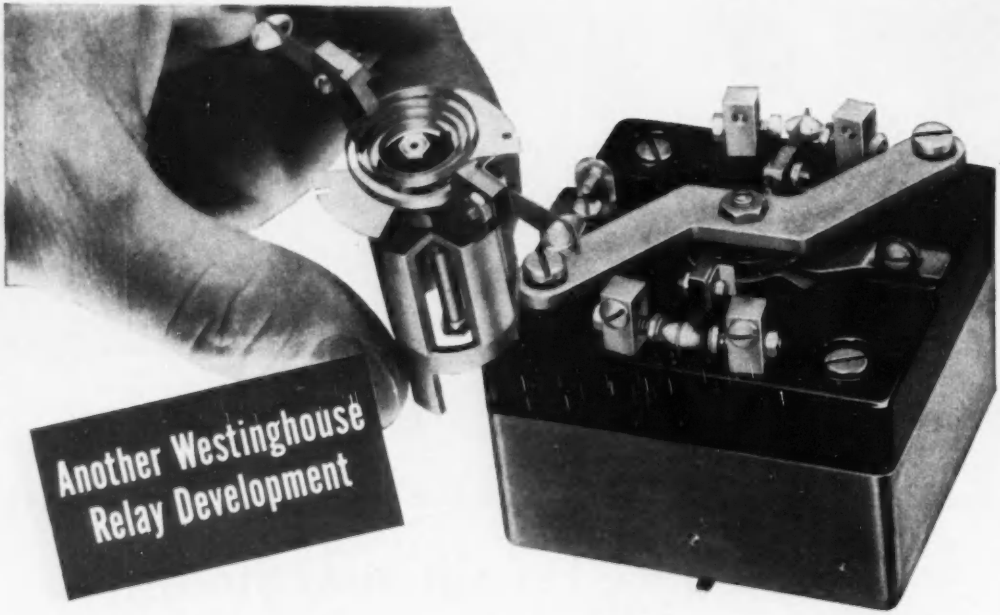
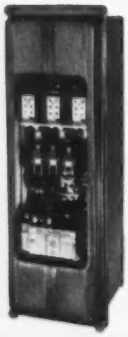
LINE MATERIAL

Line Construction Materials

Complete Coordinated Equipment for Distribution Today



New double-loop directional element ELIMINATES VIBRATION...



The Type HZM, and Type HZ, high-speed impedance relays are now available with the new double-loop directional element.

Westinghouse High-Speed Impedance Relays now offer you extra operating benefits. A new directional element, featuring double-loop design, eliminates troublesome 120-cycle vibration.

The torque produced in each loop is a double frequency sine wave. However, as these waves are 180 degrees out of phase and offset in the same direction, the net torque in both loops is a constant value—eliminating vibration. The result is an efficient, high-speed directional element, providing low burden, good sensitivity in a sturdy rugged enclosure . . . a sharper intelligence for vital relaying applications.

For complete information write for Silent Sentinel Bulletin No. B 5297. Address: Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-40402

YOU CAN BE SURE... IF IT'S
Westinghouse
RELAYS

W. G. LOVELESS

T. E. CRADDOCK

Clyde Seybold Heads NRECA

Loveless becomes vice president of the organization. Craddock is re-elected secretary-treasurer

(See Front Cover)

New president of the National Rural Electric Cooperative Association is Clyde H. Seybold. He moved up from the vice presidency after 905 member co-ops cast their ballots in his favor.

W. Gordon Loveless was elected vice president and Tom E. Craddock was re-elected secretary-treasurer.

Seybold, an Indiana corn and hog farmer, is president of the Parke County Rural Electric Membership Corporation, Rockville, Ind. Long a leader in farm cooperative movements, he has the longest service record in his statewide rural electric co-op organization. Among his trophies is a medal given by the magazine "Prairie Farmer" for his contribution to agriculture in Indiana.

A Vermont Farmer . . . Besides being a poultry and dairy farmer, Loveless is president of the Washington Electric Cooperative, East Montpelier, Vt. The Vermont farmer also has a long record of leadership in various co-op organizations. He has represented his state on the NRECA board of directors since 1948 and has served on the association's Public Relations and Resolutions Committees.

Rancher, city official, and electric system manager, Craddock is not a newcomer to officer ranks of NRECA. He also served as president of the organization from 1947 to 1949. The re-elected officer was studying to become an engineer when he was called into service in World War I.

City Official . . . Upon his return, he took up farming and later served as city manager of Seymour, Tex. In that capacity he presided over the purchases of the city's electric system and construction of a power plant. With Rural Electrification Administration funds, he expanded the system. He is also manager of the B-K Electric Cooperative at Seymour.

Because he was representing the organization on a Mutual Security Administration team studying England's power systems, Craddock was not present at NRECA's meeting held recently in Chicago.

•

Elmer Bogen, employed by Puget Sound Power & Light Co since 1935, has been appointed local manager at Ferndale, Wash. He succeeds **Martin Nelson** who has resigned. Bogen has been at nearby Bellingham since 1943, first as a farm consultant and later as a dealer representative.

Col F. T. Matthais, an American engineer, has been appointed assistant to P. E. Bradley, project manager in British Columbia for Aluminum Co of Canada. During World War II Matthais was a supervisor of construction at the Hanford, Wash., atomic works. Recently he has been in charge of a major project for Brazilian Traction, a Canadian company operating public utilities in Brazil.

Challoner Is Appointed a VP by Pacific Electric

George T. Challoner, secretary-treasurer of Pacific Electric Manufacturing Corp, San Francisco, has been named a vice president. He will continue as secretary-treasurer in addition to his new post.

The company also named Franklin B. Doyle assistant secretary. He will continue his duties as auditor.

The new vice president was first employed by Western Electric Co. From 1912 until 1914 he was with General Electric Co's Test Department at Schenectady, N. Y. For the next four years he organized and directed the electrical department of Connecticut's Trade School System. He returned to General Electric in 1918, specializing in factory cost systems.

About a year later Challoner went to Shanghai, China, as chief accountant for China General Edison Corp.

G. T. CHALLONER

In 1926 he returned to the United States and was assigned by GE to audits and appraisals of its properties, with headquarters in San Francisco. In 1929 he joined Pacific Electric as

treasurer. He was given additional duties of secretary-treasurer in 1930 and made a director of the firm in 1932.

Doyle has been with Pacific Electric since 1926, starting as a stock record clerk. He was employed in various stock record and cost work until his appointment as auditor about 20 years ago.

Prior to his association with Pacific Electric, he was employed by the railroad commission doing cost evaluation of electric properties and worked for the McLaren-Goode Co, San Francisco, a certified public accountant firm.

Depa Reveals Personnel Changes; Advances Field

Defense Electric Power Administration recently made several personnel changes.

Depa has advanced Kenneth S. Field, Ebasco Services, Inc, to a special assistant to Donald R. McClung, director of Materials and Equipment Division. Previously Field served in the agency's Construction Expediting Branch. William M. Murray, a superintendent of electric production with Cincinnati Gas & Electric Co, is now a member of the Construction Expediting Branch.

Carlton E. Howell, a retired Ebasco general engineer, and John Riley Ridgeway, Jr, Houston Lighting & Power Co, have accepted positions with Depa's Major Equipment Scheduling Branch.

Eduard Fritz, engineer of transmission line design for Pennsylvania Water & Power Co, has joined the Major Projects Control Branch and will work in the transmission and substations section.

Harold H. Heinecke has been named assistant manager of the commercial research department of the General Machinery Division of Allis-Chalmers Manufacturing Co. Heinecke was manager of market research at the Perfex Corp, Milwaukee, Wis., prior to coming to A-C.

Leonard Sloan has been appointed assistant to Edward J. Ingram, vice president in charge of sales and commercial activities for Jersey Central Power & Light Co. Sloan joined the utility in 1941 and four years later was promoted to supervisor of the construction accounting department. In 1951 he accepted a position with the Sao Paulo Tramway, Light & Power Co, Ltd, Brazil, and returned early this year.

Pierre F. Marshall has resigned as advertising and sales promotion manager of Appleton Electric Co, Chicago, to join Cruttenden & Eger, Chicago advertising agency.

Newell Clark Assigned to New Posts by NEES

Newell A. Clark has been elected president of the Lowell Electric Light Corp, Haverhill Electric Co, and Amesbury Electric Co, and vice president of Lawrence Gas & Electric Co, all subsidiaries of the New England Electric System. He will continue as president of system companies in the Boston North Shore and Mystic Valley areas with headquarters at Malden. He succeeds Leon E. Seekins, who has resigned, as head of the Lowell company.

N. A. CLARK

Clark joined the system in 1921 as station foreman for the Fall Mountain Electric Co, Bellows Falls, Vt., becoming manager in 1926. In 1929 he was made assistant general manager of the Narrangansett Electric Co, Providence, R. I. About 16 months later he was appointed general manager of the Quincy Electric Light & Power Co.

He became North Central district manager at Leominster in 1934 and was made manager of the Western district with offices at Northampton in 1944. He assumed the North Shore and Mystic Valley responsibilities in 1950.

OBITUARY

Albert Milmow

Albert Milmow, 74, pioneer electrical engineer, died March 12 at Charlotte, N. C.

Milmow started his career with General Electric Co at Schenectady, N. Y., in 1894. Five years later he went to South America and installed and operated plants in Peru and Ecuador. He returned to GE in 1901 and a year later he went on to the Philippines and then China. He returned to the U. S. in 1905 and a year later organized the Charlotte office for General Electric.

Later he joined the staff of Southern Power Co, Charlotte, and the Union Gas & Electric Co, Cincinnati. In 1915 he returned to Charlotte and became associated with Westinghouse Electric Corp. Later he represented several electrical manufacturing companies, serving in this capacity until his death.

Horace Dowie

Horace Dowie, 79, New York consulting electrical engineer, died March 12 after a heart attack while commuting in the Hudson & Manhattan tubes enroute to his home at Chatham, N. J.

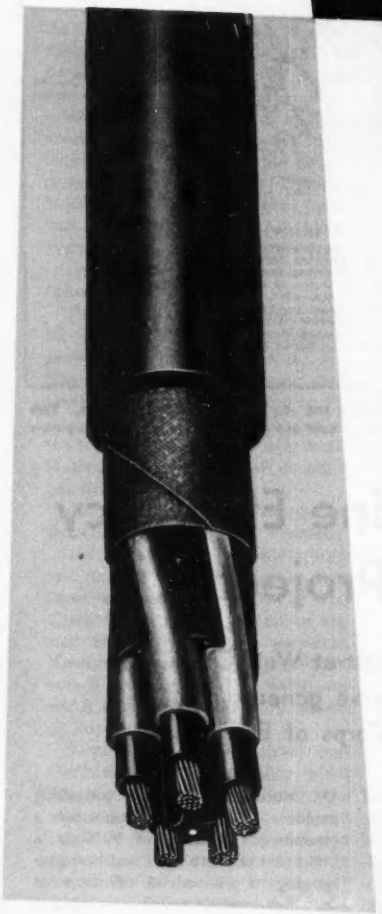
Dowie formerly was chief consulting electrical engineer for Westinghouse Church, Kerr & Co of New York, the firm which engineered Pennsylvania Station, N. Y., and the Mussel Shoals Development, Tenn. After the firm was dissolved in 1920, he became an independent consulting engineer. He was responsible for electrical construction at the Port of New York Authority Bldg. He was credited with having invented a special train lighting system.

William J. Daly, 52, Philadelphia district manager of Worthington Pump & Machinery Corp, died there March 8. Daly, who served the firm for 30 years, was district manager of the Detroit office before going to Philadelphia in 1930.

Walter G. Bennett, 87, superintendent of the Welsbach Lighting Co, Providence, R. I., until its closing in 1912, died at Providence Feb. 28. He had been employed by the Water Department of the City of Providence for 17 years, retiring in 1929.

Aging characteristics of RoZone compounds, highly important to the life of the cable, are constantly checked by means of oxygen "bomb" and long-time heat tests.

5-conductor control cable RoZone insulated, Neoprene sheathed, outer sheath of RoPrene (Neoprene)—600 volts.



Rome RoZone®

Superior Ozone-Resistant Insulation Deserves Your CONFIDENCE

What its Excellent Aging Characteristics Mean to You

Q: Why have oil base compounds been recognized as superior for over half a century?

A: Partly because of excellent moisture and ozone resistance, but particularly because of their resistance to natural aging effects. Such cables are still operating satisfactorily today.

Q: How do we know that RoZone oil base compound has superior aging characteristics?

A: First, because it exceeds industry specification requirements. Second, because this type formulation has been time proved for over fifty years.

Q: Are the applications of RoZone limited by its aging qualities?

A: No. RoZone insulated cable can be used in practically any application because of its excellent aging properties. It is successfully installed direct in earth, in conduit, in racks, overhead and in combination runs.

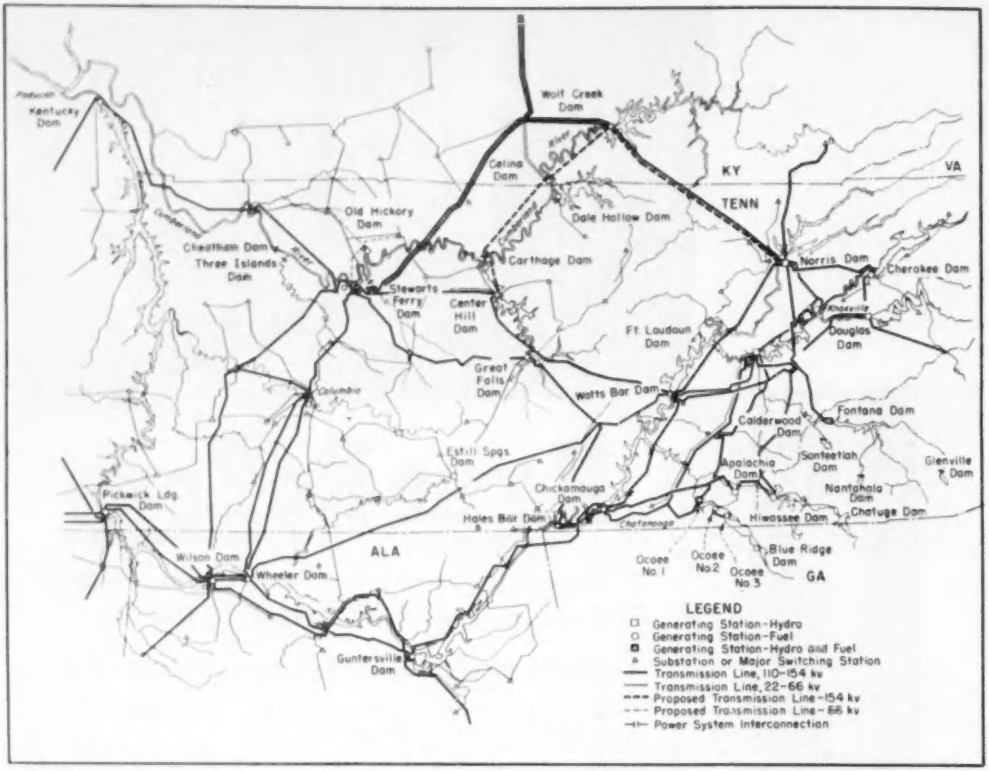
In any installation where exceptional resistance to aging, corona and ozone cutting plus low dielectric loss and excellent electrical stability in water are required, Rome RoZone deserves your confidence.

It Costs Less to Buy the Best

RoZone is approved and accepted by leading utilities, industrials and consulting engineers.

ROME CABLE
Corporation
ROME · NEW YORK
and
TORRANCE · CALIFORNIA

ROME CABLE ROME, N.Y.



DUAL-PURPOSE PROJECTS Wolf Creek to the north and Center Hill in the center of TVA's territory both feed into its 154-kv transmission system. Center Hill also supplies the 46-kv network. Both projects were designed, built and operated by the Corps of Engineers

Record 94% Hydroturbine Efficiency Attained at Center Hill Project

Acceptance tests pending on companion unit at Wolf Creek. Oil-filled, pipe-type, 15-kv cable leads serve generators at these new-dual purpose projects of the Corps of Engineers

FRED H. WOLF, Chief, Hydroelectric Design Branch, Engineering Division, Nashville District, Corps of Engineers

RICHARD B. WILLI, Chief Engineer, Hydraulic Turbine Dept, Baldwin-Lima-Hamilton Corp

Record hydroturbine efficiency of 94% and use of oil-filled, pipe-type, 15-kv generator leads are features of the Wolf Creek and Center Hill dual-purpose projects, two new hydroelectric facilities designed and built by the Corps of Engineers in Kentucky and Tennessee.

As part of the Government acceptance tests on generating equipment, efficiency tests were carried out on Center Hill hydroturbine No. 2 by Dr. Norman R. Gibson, consulting engineer. Although the unit has a guaranteed efficiency of 90% at a 160-ft net effective head and best gate opening, it attained an efficiency of 4% higher while running at normal synchronous speed under the specified head.

It may be concluded from these tests that Center Hill is one of the most efficient hydroelectric power plants in the country. A similar test

will soon be made on one of the units at Wolf Creek project.

Dual Purpose Projects . . . Wolf Creek and Center Hill projects were built for flood control and production of hydroelectric power. They are key units in the Corps of Engineers' general over-all plan of developing the Cumberland River Basin for flood control, navigation, power and other purposes. They are being operated by the Corps of Engineers under the immediate jurisdiction of the Nashville (Tenn.) District. Transmission lines connecting the projects to the TVA system are owned by TVA.

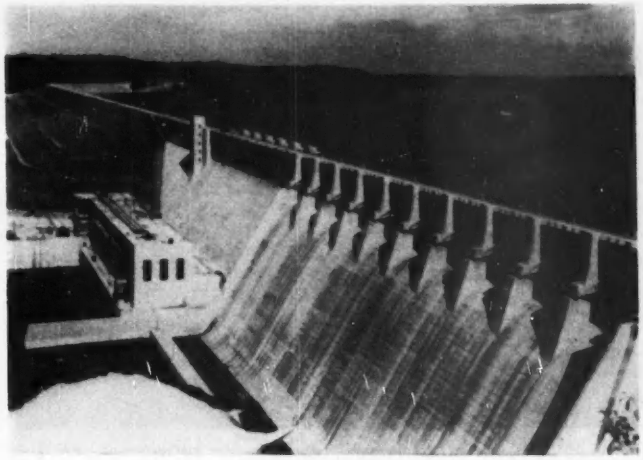
Wolf Creek project is located on the Cumberland River about 10 miles north of Albany, Kentucky. It has a storage capacity of 2,094,000 acre-ft between elevations 723.0 and 760.0 reserved entirely for control of flood water. The reservoir will be 105 miles long and will be one of the largest man-made lakes in the country. Nominal top of the power pool (spillway crest) is at elevation 723.0. Maximum draw-down for stream-flow regulation and power production is 50 ft below this elevation.

The dam is a combination rolled-fill earth embankment and concrete gravity structure. Power intake section contains six 20-ft diameter steel-lined penstocks and are spaced on 58-ft centers. Powerhouse, situated at the toe of the dam on the right bank, is designed for six units, all of which are being installed.

Center Hill project is located on the Caney Fork River in Tennessee, about 15 miles southeast of Carthage and 20 miles west of Cookeville. Dam construction is similar to that of Wolf Creek except that power intake section contains only three penstocks. Reservoir storage capacity of 762,000 acre-ft between elevatons 648.0 and 685.0 is reserved entirely for control of flood water.

Nominal top of the power pool (spillway crest) is at elevation 648.0. Maximum draw-down level for stream-flow regulation to generate power is 30 ft below this elevation. Powerhouse is situated directly at the toe of the dam on the left bank. It is designed for and houses three units.

Identical Units . . . At each project maximum height of the dam is about 250 ft. At Wolf Creek, heads for power generation range from 111 to 214 ft; at Center Hill the range is 131 to 207 ft. Because normal head for power generation at both plants is 160 ft, it was possible to effect appreciable savings in engineering, design, and construction costs by designing each plant on the basis of identical generating units.



WOLF CREEK PROJECT on the Cumberland River impounds a reservoir 105 miles long and provides a storage capacity exceeding 6,000,000 acre-ft, of which 2,094,000 acre-ft is for flood control. Dam is 250-ft combination rolled-filled earth and concrete gravity structure

Total normal rating of Wolf Creek is 270,000 kw when operation is at design power factor. However, the machines are basically designed for a continuous 15% overload with a permissible temperature rise of 80 deg. Therefore, total maximum peaking capacity of the plant at unity power factor is 345,000 kw. Rating of the Center Hill plant is one-half that of Wolf Creek insofar as "capacity for load" is concerned.

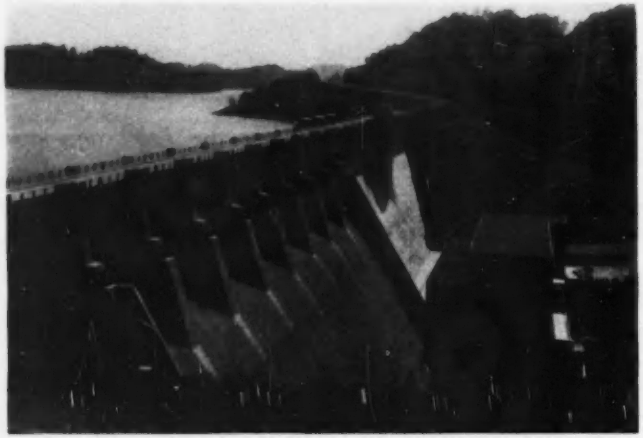
However, because of the larger drainage area and water supply, and the greater amount of storage capacity for stream flow regulation, Wolf Creek can turn out about 2½ times as much energy as can be produced at Center Hill. Average annual production for Wolf Creek is estimated as 867 million kwhr whereas the comparable amount for Center Hill is 351 million. Center Hill is more of a peak-load plant than is Wolf Creek.

Different Local Factor . . . At Center Hill maximum draw-down of the reservoir below spillway crest for power purposes is 30 ft compared to 50 ft for Wolf Creek. During an extremely dry period and with full draw-down of the power pool, Center Hill is able to generate energy on a load factor of about 16% whereas load factor at Wolf Creek is about 26%.

Both plants are of considerable

Project Specifications Show Variations in Local Conditions

	Center Hill	Wolf Creek
Top of flood control and top of spill gates, elevation	685	760
Top of power pool, elevation	648	723
Bottom of power pool, elevation	618	673
Tailwater elevation (three units)	486	561
Minimum tailwater elevation	472	542
Maximum head, feet	207	214
Minimum head, feet	131	111
Normal head, feet	160	160
Maximum run-away speed at 160-ft head, rpm	177.5	194
Run-away speed at maximum head of 207 ft, rpm	202	224
Total storage, acre-ft	2,000,000	6,000,000
Storage for flood control, acre-ft	762,000	2,094,000
Turbines, 62,500-hp, vertical Francis type, 105.9 rpm	3	6
Generators, 50,000 kva, 13.8 kv, 3 phase, 60 cycles, 90% power factor	3	6
Load factor, percent	16	26



CENTER HILL PROJECT on the Caney Fork River has total storage capacity of about 2,000,000 acre-ft, of which 762,000 acre-ft is for flood control. Dam is similar to Wolf Creek dam except that power intake section is designed for three instead of six units

value as stream-flow regulator for the benefit of downstream plants on the Cumberland River. They also can be used as stabilizers for the western part of TVA's electrical system. Wolf Creek is of special importance because it is tied in with Summer Shade substation along the main 154-kv double-circuit interconnecting line between Nashville, Tennessee, and Louisville, Kentucky. This line is reported to be one of the most difficult lines in the country to regulate.

Turbine Features . . . Turbines in both plants are single-runner, 62,500-hp, vertical Francis units. They are of one piece cast-steel construction and have a guaranteed efficiency of 90% at 160-ft net effective head and best gate opening. Capacity of the units can be increased to 79,000 hp to run the generators at 115% of their capacity. Output can be limited to this value by a manually-adjusted stop on the gate-operating cylinders for any head and gate opening at which this output may be exceeded. Center Hill units are built to withstand stresses resulting from operation at the runaway speed of 202 rpm at maximum head of 207 ft. Wolf Creek units are designed to withstand the estimated runaway speed of 224 rpm at 214-ft maximum head.

Wicket gates have chrome nickel surfaces at closing edges, top and bottom to match similar surfaces on heat cover and bottom plate. Items such as gate stems, linkage and shift ring are provided with individual grease measuring relays to assure a positive lubrication each time the system is operated. For motoring operation, water is supplied to the turbine's stainless-steel seal rings for cooling and lubrication. An automatic valve, operated by turbine gates, admits air to the space below the runner.

Governor Operation . . . Governors are oil-pressure, relay-valve actuator type with electrical speed-responsive elements driven from independent direct-connected ac generators. Normal operating oil pressure is 250 to 300 psi. Each unit can operate through a complete closing or opening stroke in 5 sec with oil pressure not over 250 psi and operating head on the turbine of 207 ft. Servo-motors have a by-pass to retard gate closure from slightly below speed-no-load to fully closed. Rate of gate movement can be adjusted between 5 and 12 sec for full opening or closing.

Governor relay valve with zero lap has speed-responsive element sensitive to 0.1% speed variation of main units. Speed-level control ranges from 85% of rated speed at no-load, zero-speed droop to 105% rated speed at rated load and maximum-speed droop. Connection between turbine gate operating mechanism and governor consists of airplane-type flexible-steel cables operating over sheaves.

Turbines will be equipped with recording flowmeters for the turbine-casing taps as established in the field during the turbine efficiency tests. They are expected to measure water flow with an error not exceeding plus or minus 0.25% under normal flow conditions.

Pipe-Type Cable . . . Generators in both plants are rated at 50,000 kva, 45,000 kw, 90% power factor, for operation at 105.9 rpm, 3 phase, 60 cycles and 13.8 kv. Both plants are using 15-kv, oil-filled, pipe-type cables for underground transmission of energy from powerhouse to switchyard. Leads from generators to transformers are carried on 6⅝ in. OD steel pipes filled with oil at 200 psi normal pressure. There are two pipes per generator, with each pipe carrying two 800-Mcm cables for each phase. Economic considerations and the desire for a very high degree of electrical and mechanical reliability prompted the use of oil-filled, pipe-type generator leads.

Switchyard Layout . . . Switchyard at Wolf Creek for primary transmission voltage of 161 kv consists of three transformer bays and three line bays. The yard can be extended to accommodate more transmission lines should the need arise. Three existing transmission lines are designed to take the full output of the plant. Two of the 154-kv circuits connect Wolf Creek with Summer Shade substation; the other one ties in with Norris Dam. Main single-phase power transformers are installed three for each pair of generators. A tenth unit is carried as a spare.

Switchyard at Center Hill has transmission voltage levels of 161 kv and three 46-kv line positions in operation, with spare available for future expansion. Power can be fed into TVA's system at either or both voltages. The 161-kv equipment is able to handle the entire rated capacity of the three-unit plant. At the 46-kv level, however, not more than 40,000 kva, or about 27% of full plant rating, can be accommodated. Primary voltage lines feed into TVA's 154-kv Nashville-Great Falls circuit, while the secondary-voltage lines transmit power to Watertown, Carthage, and Cookeville, Tennessee.

Ten 161-kv single-phase main power transformers are installed at Center Hill, a bank of three for each generator, plus one extra as a spare. Secondary-voltage lines are served by a bank of three single-phase 46-kv transformers, with an additional transformer as a spare.

C-E REHEAT BOILERS

GREENIDGE STATION

NEW YORK STATE ELECTRIC & GAS CORPORATION

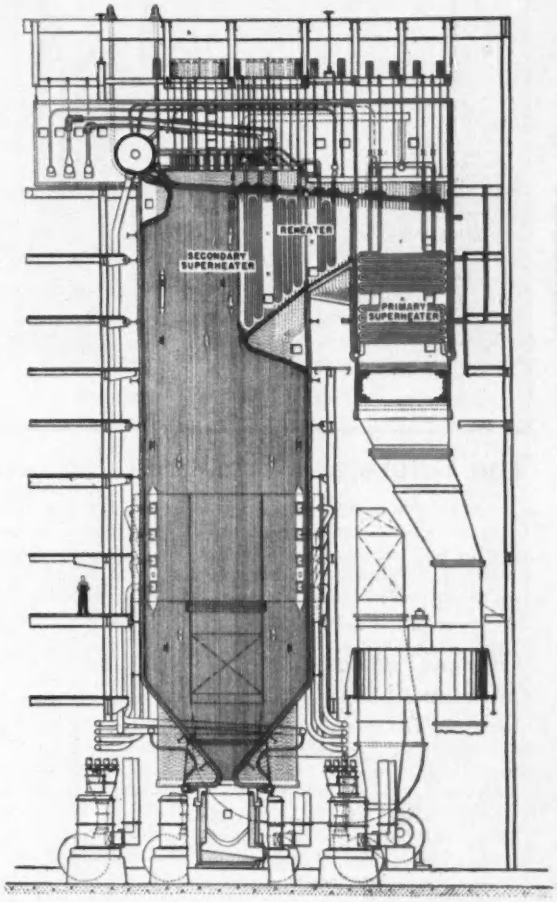
THE C-E Unit illustrated here is in process of fabrication for the Greenidge Station of New York State Electric & Gas Corporation at Dresden, New York.

It will serve a 100,000 kw turbine generator operating at an initial steam pressure of 1450 psi and a temperature of 1000 F reheated to 1000 F.

The unit is of the radiant type with a reheater section located between the primary and secondary superheater surface. A finned tube economizer is located below the rear superheater section, and regenerative air heaters follow the economizer surface.

The fully-water-cooled furnace is of the basket-bottom type, discharging to a sluicing ash hopper.

Pulverized coal firing is employed, using bowl mills and vertically-adjustable, tangential burners. Arrangements are made to use oil as an alternate fuel as required.



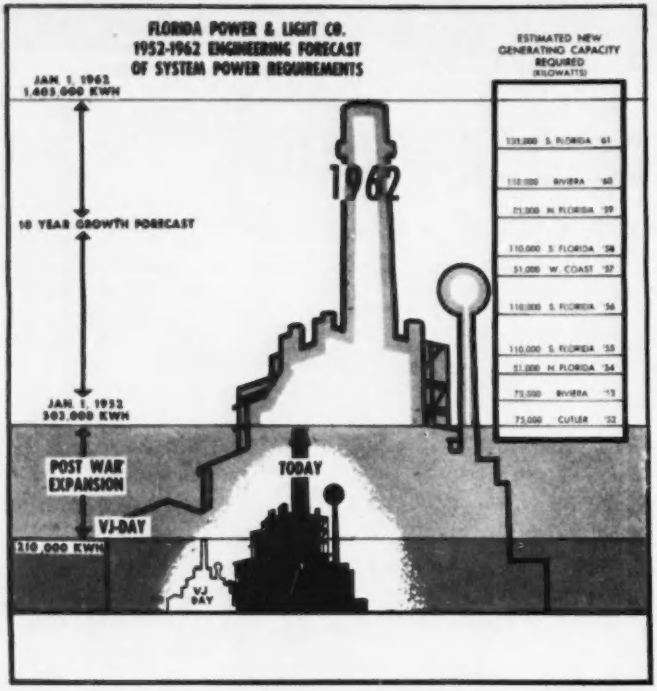
C-E

COMBUSTION ENGINEERING–SUPERHEATER, INC.

200 Madison Avenue • New York 16, N. Y.

B-567

ALL TYPES OF BOILERS, FURNACES, PULVERIZED FUEL SYSTEMS AND STOKERS; ALSO SUPERHEATERS, ECONOMIZERS AND AIR HEATERS



The Future as Florida P&L Pictures It

Florida Power & Light Co has resorted to a pictograph to tell its customers of the company's expansion program. The present estimate is that by 1962 the company will need an additional 902,000 kw of capacity to serve a load estimated at 1,405,000 kw. On VJ-Day capacity of the utility, which serves most of southern Florida as well as its "Gold Coast," was 210,000 kw.

'Freedom Production' Celebration, Sept 7-13

A "Production for Freedom" celebration to show how America has turned out the goods for peace and defense through the private enterprise system will be held Sept. 7-13.

The celebration is one of the important projects of the Electric Companies Public Information Program for this year. But the celebration will be participated in by all the key industries and by many of the big trade associations.

Its objectives follow:

1. To inform the nation and the people that America has reached a position of world leadership in preservation of world peace through the unimpeded genius of the American people.

2. To emphasize the major role in production played by electric power.

3. To inform the public that the electric industry can meet the requirements of the territories it serves.

4. To dramatize the development of modern tools of production, notably in the use of electric power, which have been responsible for the high productivity of the average American worker and his high standard of living.

Carolina P&L Starts 'Finer Carolina' Contest

Carolina Power & Light Co has announced a contest for community development built around the theme, "Building a Finer Carolina." The company is offering $8,750 in prizes for towns which make the greatest improvement in terms of community development during the year. The 340 communities in North and South Carolina served at retail by the company are eligible.

There will be three population groups competing for three sets of prizes of $1,000 each for winners and $750 each for runners-up. The first group will include towns of 1,000 or less, the second towns of 1,001 to 2,500, and the third those over 2,500. In addition two state prizes of $1,000 each will be awarded to North Carolina's and South Carolina's "finest," regardless of population. This will enable a town to win up to $2,000.

Towns have until April 1 to enter the competition. The contest period will extend to Nov. 1, after which the contestants will be judged on improvements made during the previous 12 months.

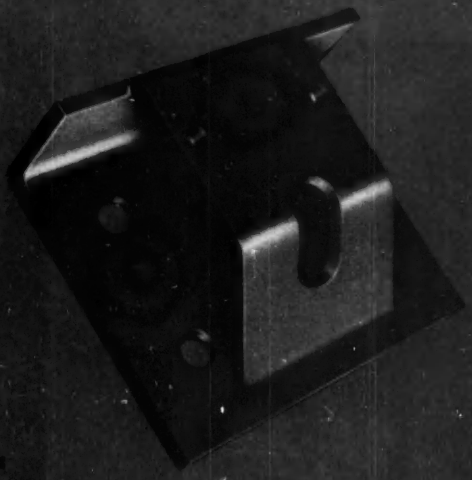
AD COPY THEMES

Alabama Power Co—"This Also Is History" is heading for an ad which tells of the extermination in 1814 of the Muskogee Indians in the Tallapoosa basin and tells of the company's Martin Dam project on the river. The ad is one of a series on the "Highlights of Alabama History." All associate the history of the state with that of the company.

Consolidated Edison Co of New York—"Our recipe for electrical living costs less than 20¢ a day," is a testimonial quotation from a customer which was used as an ad headline. Layout includes five recipe cards headed: lighting, refrigeration, entertainment, time keeping, and household helps. On each is pictured the appliances that perform the function named.

Southern Co—"Working for 'Peanuts' Is Big Business in Southern City, U. S. A." This ad, one of a national campaign, emphasizes that the peanut business is an important product in the company's area.

Washington Water Power Co—Ad marking the 63rd anniversary of the company honors 87 veteran employees as "pioneers of progress." The one-page newspaper ad carried 1⅛ by 1½-in. cuts of the veterans.



TRANSFORMER

OPERATORS QUIZ:

How did the moving of a small piece of strap iron improve moisture protection of dry type transformers?

You wouldn't think a small piece of steel could play so important a part in the operation of a transformer.

But it did, and so another important Kuhlman transformer development took its place beside other famous Kuhlman "firsts" such as the Best Iron Core, the "Quick-Grip" bushing clamp and silicone insulation. And this new feature definitely puts Kuhlman a step ahead of competitive makes of dry type transformers.

It's another example of Kuhlman's inventive genius — progress that works for you when you buy Kuhlman transformers. See panel below for answer to question.

Kuhlman's improved cover completely drip proof.

Kuhlman's new flush-cover lifting lug—by simply moving lifting lugs from cover to case, Kuhlman provides its smaller dry types with greatly improved moisture protection.

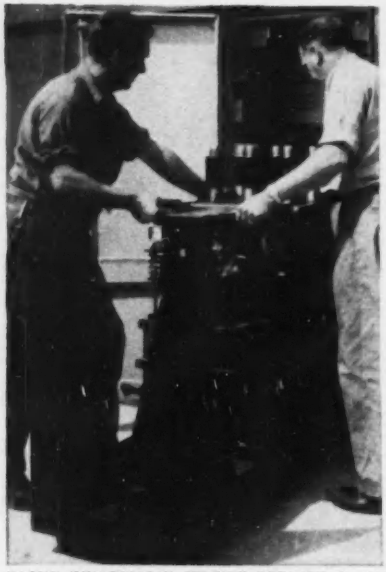
Increased moisture protection is provided by the fact that the cover top, being free from drilled openings, is completely drip-proof, so water from leaky pipes, open windows, etc., can seep inside the case.

Cover comes off quickly and easily by removing bolts which pass through edge of cover into lug. Lugs remain always in place and are bolted through the case to the core clamp, so that unit can be fitted with cover on or off. An important plus feature!

Kuhlman ELECTRIC COMPANY, BAY CITY, MICHIGAN K E

A great name in transformers. Write for descriptive bulletins on Kuhlman power distribution, dry type, liquid-cooled and specialty units.

EXPORT REPRESENTATIVE: *International Standard Electric Corporation,* 67 Broad Street, New York 4, N. Y. Cable Address: Microphone, N. Y.



EASILY REMOVABLE CIRCUIT BREAKER facilitates inspection or replacement. This *vertical-lift* breaker cannot be moved in or out of operating position unless contacts are open.

AUTOMATIC G-E LOAD-RATIO-CONTROL unit eliminates separate voltage regulator. Control panel shown above has raise and lower push buttons, position indicator and operations counter. Some G-E LRC units have made over 1,000,000 tap changes without appreciable wear.

Utility finds quick answer to growing loads with G-E Packaged Substations

QUICK INSTALLATION: This G-E substation for the Western Massachusetts Electric Co. was trucked directly to site of installation, bolted to waiting foundation, connected to high-side and feeder cables, and placed in operation.

Standardized factory-assembled substations simplify utility expansion.

Faced with rapidly growing loads on one side of Pittsfield, Mass., the Western Massachusetts Electric Company found a ready answer when it ordered and installed the G-E unit substation shown at left. By selecting a standard unit directly from G-E specifications, it not only got quick delivery of a complete, ready-to-operate substation, but also saved time and money all along the line—from initial planning through to final installation.

When the need for further substation capacity developed on the opposite side of town, standardized equipment again was the answer—even to the necessary steel structure, as shown in the photograph on the opposite page.

The trend to standardized equipment, as the logical cost-saving way to meet growing loads, is evident in utility expansion programs across the country. Because of their great flexibility, G-E unit substations are applicable to a wide variety of system arrangements. For full information, write for Bulletins GEA-3800 and GEA 4500. *General Electric Co., Schenectady 5, N.Y.*

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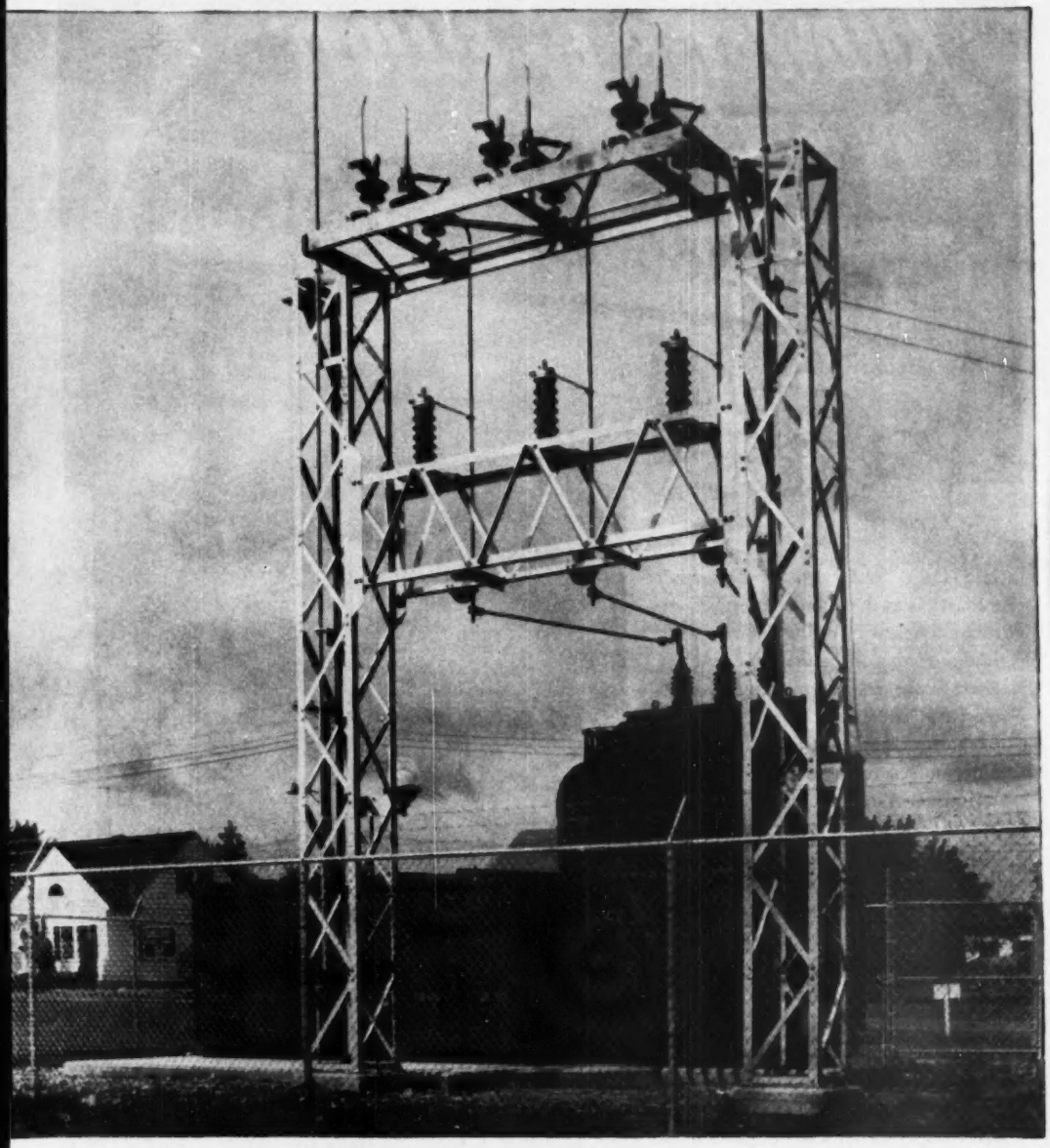


EVERYTHING STANDARD—INCLUDING THE STRUCTURE: One of the latest substations installed by the Western Massachusetts Electric Company, this unit was supplied complete, even to the steel structure for the incoming high-voltage lines. Standardized equipment like this eliminates weeks of detailed planning and engineering, simplifies purchasing. Trained engineering personnel have more time for the important work of broad system planning. The trend is to "standards"!

GENERAL ELECTRIC

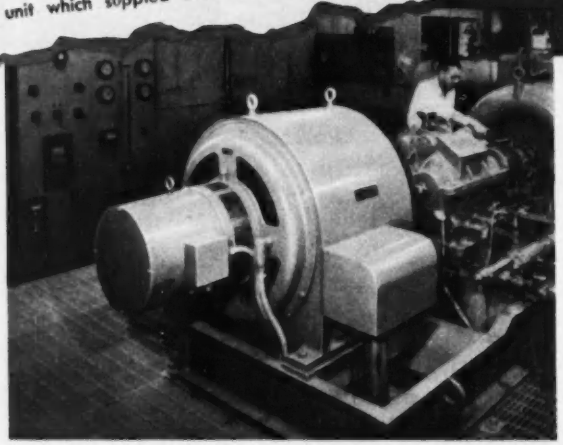
KILOWATTS by ELLIOTT generator for the...

First Atomic Power Plant

World's first production of electrical power by nuclear energy attained on December 20, 1951 at the National Reactor Testing Laboratory in Idaho. Heat from the Experimental Breeder Reactor was transferred by liquid metal to a heat exchanger where water was turned into steam for use in a conventional steam turbine generating unit which suppled electricity for entire building.

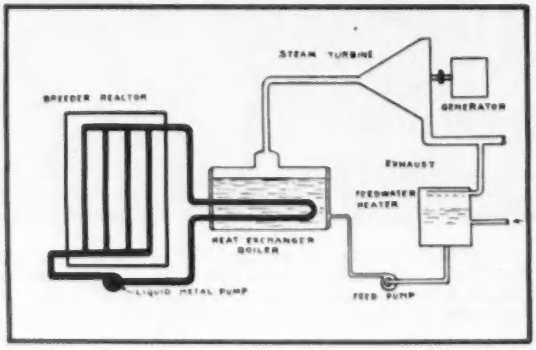
HISTORY WAS MADE December 20th, 1951 at the Atomic Energy Commission Reactor Testing Laboratory in Idaho. Here, for the first time, nuclear energy was transformed into useful electrical energy by means of a heat exchanger boiler, steam driven turbine, and a standard 300 kw, 1200 rpm Elliott generator.

Thus, an Elliott generator was appointed by fate to be the medium through which flowed the first kilowatts ever to be generated by atomic power. This generator is scheduled to continue in the research program now being conducted which will undoubtedly serve as a stepping stone towards the ultimate economic production of electrical energy from nuclear energy. It seems safe to predict that this is the first of many Elliott generators which will in the future thus provide "tomorrow's power."



Above: *The turbine-generator unit.*

Below: *Diagram showing the experimental process by which atomic energy was transformed into kilowatts. Reprinted from "Power Engineering," Feb.*



ELLIOTT Company

Ridgway Division
RIDGWAY, PA.

R2-11

Plants at: JEANNETTE, PA. • RIDGWAY, PA.
AMPERE, N. J. • SPRINGFIELD, O. • NEWARK, N. J.
DISTRICT OFFICES IN PRINCIPAL CITIES

Litecraft Mfg Corp

BLACK PAINT becomes a lighting component

Contrast Provides the Ceiling

E. R. MANNING, Litecraft Mfg Corp, Brooklyn, N. Y.

Budget considerations ruled out a false ceiling to cover up exposed pipes, ducts, sprinkler outlets, etc, hanging from the ceiling. That was the situation that confronted Morris Lapidus, store designer, in the new Ludwig Bauman Furniture Store in Newark, N. J. He solved the problem with black paint and a reflector fixture. The paint was applied to the ceiling and to all the stuff suspended below it. The fixture consists of an aluminum reflector, 36 inches in diameter above a 300-watt Silver-Bowl lamp with two shielding rings. The combination of large, bright reflecting surfaces and unrelieved blackness above them results in a striking effect that contributes much to the appearance of the sales floor.

Westinghouse Electric Corp

Clothes Washed as Mother Markets

While her year-old Deborah stretches her neck to get an upside-down view of the scene, Mrs. Mary Schoville takes her wash out of one of the 20 laundromats installed in the Piggly-Wiggly supermarket at Beloit, Wis.

How Boston Handles Appliance Servicing

JOHN G. WADDELL, Managing Director, Electric Institute of Boston

Distributors, service companies, and selected dealers are doing a good job of keeping electrical appliances operating in the metropolitan area of Boston and the utilities are relieved of that responsibility entirely.

Each distributor has a so-called factory set-up, a service manager and distribution staff who are factory-trained in mechanics, procedures, replacement policies, and guarantees. Each maintains a stock of replacement or repair parts in proportion to the demand and volume of his territory.

Actual servicing of the consumer's equipment is handled in one of three ways:

1. The distributor has an organization of foreman, servicemen, cars, and materials for servicing his lines of appliances in the consumer's home. The goods are sold through non-servicing dealers and, of course, there is a differential in price to absorb the servicing charges during the warranty period. After that, established prices are charged for labor and parts. Twenty-four hour service is maintained for emergencies.

2. Through an exclusive arrangement the distributor appoints a local independent servicing company to handle all consumer calls in the metropolitan area or a part of it. Servicing companies carry stocks of replacement parts. Their servicemen must be trained and familiar with distributor and factory policies. There are a number of such companies operating successfully here.

3. Servicing dealers are appointed by distributors in some spots in the metropolitan area and in all sections outside it. They sell and service all the goods sold by them. These dealers must maintain shops, qualified mechanics, and reasonable supplies of replacement parts. They must send their men to either factory or distribution schools for training and refresher courses. Supervisors visit and check up on the work of the servicing dealer at regular intervals and bring up to the minute service information and practices to him and his men.

Within the Electric Institute of Boston, Inc, we have a section known

as the Service Managers Group. Their objective is to make sure the consumer gets prompt, satisfactory service on appliances bought in good faith—but not to abuse this privilege with petty or unnecessary calls. At meetings speakers give talks on appliance construction and servicing and there is always a general discussion of problems common to all and how best to solve them.

This is not to imply that there are no service problems in this area. There are, just as there are service problems with all moving parts. But as soon as they are apparent our Service Managers Group moves in and gets the situation in hand.

Soil Heating Cable For Better Farming

EWELL M. ALEXANDER, Rural Representative, Savannah Electric & Power Co, Savannah, Ga.

Electric hotbeds are recommended by the Savannah Electric and Power Co as the best method for producing potato and tomato plants. Over two years experience by our company with the use of soil heating cable on average farms in our area has shown that the electric hotbed provides a controlled even heat and clean disease-free beds. They are economical to operate and produce faster growth.

In February, 1948, a hotbed was located on an average farm in Bryan County. Two 120 ft lengths of 230 v, 800 w each, soil heating cable and thermostat were used. A meter was installed on the bed to record the actual kwhr used in operation. A progress chart was maintained showing kwhr consumed daily, plant progress, wet or dry, temperature and production.

The 6 by 30 ft bed was built with the south side 16 in. high and the north side 28 in. high to give a 12 in. slope to the 3 by 6 ft glass frames. A soil mixture of 40% sawdust and 60% new soil with 40 lb of 4-8-6 fertilizer was added. The thermostat was set for 85 F and 15 bu of certified medium size sweet potatoes were placed in the bed. It was energized March 5 and at the end of 3 weeks 14,500 plants were pulled and by May 12 a total of 42,300 plants had been produced. For the 9 weeks period a total of 1,793 kwhr was consumed at 1½¢ per kwhr, which would total $26.89 or 63.5¢ per 1,000 plants. In our section, early certified plants sell for $3.50 to $4.00 per 1,000.

By February, 1950, farmers in our area had a total of 19 electric hotbeds in operation and were producing more than 51,000 sweet potato plants per bed, with estimated average consumption of 1,800 kwhr per bed, a cost of 53¢ per 1,000 plants. By stressing the use of certified plants from disease-free hotbeds and having the field properly prepared ahead of time, some of these farmers have been able to produce 150 to 200 bu of sweet potatoes per acre for early markets.

ELECTRIC HOTBED 6 by 30 ft has two 120-ft lengths of 230-v, 800-w (each) of soil heating cable to provide controlled, even heat, faster growth and disease-free bed. Energy cost is only 7% of price of purchased plants

In a 6 by 30-ft electric hotbed, constructed as recommended using new clean Hyde Loam soil with thermostat set for 75 F (after the first leaves begin to develop), we use a starter solution such as Hyponex. Eleven ounces of Certified Marglobe or Rutgers tomato seed (Marglobe for early gardens and local markets, Rutgers for green wraps for shipping) will produce 72,000 tomato plants in 4 weeks and consume only 973 kwhr. Based on 1½¢ per kwhr it will cost 20.7¢ per 1,000 plants. Early certified tomato plants when available last year cost our farmers an average of $3.00 per 1,000.

Light for the Tools

Combining light and power in one device, this home-made stand is a useful member of the shop family at the Electric Research Farm of the Wisconsin Utilities Association. Below the flood lamp to illuminate the work is a double outlet for power tools or hand lamp. The flood light may be replaced with an infrared lamp for drying operations.

Motel Room Coolers

A promising field for sale of room air conditioners is in the growing number of de-luxe motels springing up along the highways. Mitchell Manufacting Co, Chicago, reports installation of 20 of their ¾-ton models in the new Highway 77 Motel at Kingsville, Texas.

AMERICAN P&L's Pres Howard Aller has finally decided to let . . .

. . . Pres Kinsey Robinson run WWP as an independent company

Battle Over, But War Continues

Public power forces, led by C. C. Dill, former U. S. Senator and attorney for Pend Oreille County Public Utility District, have declared that although they have lost a Washington Water Power battle they have not lost the war. They will press condemnation actions being held in abeyance as soon as distribution of WWP stock is effected.

This statement was made after American Power & Light Co's board of directors unanimously voted March 20 to distribute its WWP common stock holdings to its stockholders. Although there are some formalities to be observed, it is estimated that such distribution can be made by mid-year.

Forced Distribution . . . AP&L distribution action probably was forced by claims of Electric Bond & Share Co and others that WWP common is worth $45 a share instead of the $30 which the PUD's have offered to pay, Dill has opined. He said that SEC approval of the distribution plan would touch off wild speculation in WWP stock. The result will be that 97½% of the stock will be owned outside of states where the 63-year-old company operates. He also declared that public agencies have preferences on Bonneville power which might leave the WWP area at great disadvantage during power shortages.

Leader of the Drive . . . Howard L. Aller, who heads both WWP and its parent company, AP&L, has led the drive to sell WWP to three PUD's. Since the AP&L board of directors had cooperated closely with Aller, it is certain that he directed the capitulation to the determined band of AP&L stockholders who have fought to keep WWP in the ranks of free enterprise.

Main reason for Aller's about-face, he said, was that his plan to sell WWP was not capable of reasonably expeditious consummation. AP&L is under orders of the Securities and Exchange Commission to liquidate as rapidly as possible under the "death-sentence" clause of the Holding Company Act of 1935.

Sale Under Fire . . . At the time the decision to distribute the stock was announced, the proposed sale had been under fire from several groups. However, two actions were believed to be the immediate reason for Aller's decision to drop his plan to sell. These were: (1) The decision of a U. S. Circuit Court of Appeals holding that SEC had jurisdiction over the proposed sale of WWP (EW, March 24, p 111), and (2) the move by a bloc of AP&L stockholders to call a special meeting for the purpose of electing a board of directors which would push the distribution plan.

Although there is now before the SEC a plan for distribution of the stock to AP&L stockholders, AP&L has indicated it will file another plan. The first plan (EW, Nov. 12, 1951, p 20) called for reclassification of the WWP stock to make it conform to the number of outstanding shares of AP&L. It is not expected that the new plan will differ greatly from the one previously submitted.

After receiving the plan, SEC will call a hearing on it. If no major opposition appears, it is likely SEC will ask a U. S. District Court to order the plan be put into effect. Following issuance of the court order, AP&L would then reclassify and distribute the WWP stock to American holders.

Today in Utility Finance

YIELDS (%)

Quality	Bonds			Preferred Stocks			Common Stocks		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
DATE									
1952									
March 27	**2.96**	**3.00**	**3.14**	**4.15**	**4.32**	**4.48**	**5.32**	**5.94**	**6.49**
March 13	2.97	3.02	3.14	4.16	4.35	4.69	5.32	5.92	6.55
4th 1951	3.02	3.07	3.21	4.32	4.50	4.91	5.42	6.18	6.84
3rd 1951	2.87	2.91	3.04	4.05	4.27	4.61	5.52	6.24	7.05
2nd 1951	3.02	3.11	3.23	4.11	4.37	4.68	5.73	6.38	7.37
1st 1951	2.87	2.93	3.00	3.96	4.19	4.52	5.47	6.20	7.13

Data: Reis & Chandler, Inc.

EARNINGS

Company	Period Months	Ended	Net Income 1952	Net Income 1951	Earnings Per Common Share 1952	Earnings Per Common Share 1951
Carolina Power & Light	12	Feb.	$5,807,931	$5,662,521	$	$
Central Illinois Light	12	Feb.	3,078,439	3,029,387	2.86a	3.11a
Consumers Power	12	Feb.	19,625,499	20,105,286	2.63a	2.98a
Detroit Edison	12	Feb.	15,911,762	16,315,518	1.60a	2.05a
			1951	**1950**	**1951**	**1950**
California-Pacific Utilities	12	Dec.	$480,043	$529,481	$1.79b	$2.29b
Cleveland Electric Illuminating	12	Dec.	11,405,995	10,622,035	3.68	3.40
Consumers Power	12	Dec.	19,515,063	19,004,340	2.61a	2.78a
Iowa Power & Light	12	Dec.	2,996,046	2,956,761	1.89	1.86
Kansas City Power & Light	12	Dec.	4,299,148	4,676,266	1.89	2.08
Pacific Gas & Electric	12	Dec.	36,876,245	37,846,019	2.14b	2.62b
Southern California Edison	12	Dec.	19,124,649	19,018,005	2.81a	2.97a

NOTE—The figures shown for the last seven companies have been audited.
a—On shares outstanding at end of each year; b—On average number of outstanding shares.

FINANCING

Company and Description	Amount of Offering (000)	Offering Price	Yield to Public
WEEK OF MARCH 20-26			
Bonds			
Oklahoma Gas & Electric—1st mtg 3¼% 1982	$12,000	101.4213	3.30
Consolidated Edison Co of New York—1st mtg 3¼% 1982	50,000	102.384	3.25
Common Stock			
Mississippi Valley Public Service—15,000 sh (being offered to holders on 1-for-5 basis, record March 7 to expire March 21)	$285	$19.00	7.37%
Arizona Public Service—400,000 sh	5,100	12.75	6.27
WEEK OF MARCH 27 TO APRIL 2			
Bonds			
Texas Power & Light—1st mtg 1982	$14,000	.....	.....
Texas Power & Light–debentures 1977	5,000	.....	.....
West Penn Power—1st mtg 1982	12,000	.....	.....
San Diego Gas & Electric—1st mtg 1982	12,000	.....	.....
Interstate Power—1st mtg 1982	2,000	.....	.....
Omaha (Nebraska) Public Power District—electric rev 1954-1982	17,000	.....	.....
Common Stock			
Portland General Electric—250,000 sh	..... **	.....	.....
Texas Utilities—409,689 sh (being offered to commonholders on 1-for-12 basis (a), record March 5 to expire March 28)	$13,315	$32.50	5.17%
Central Louisiana Electric—53,616 sh (being offered to commonholders on 1-for-7 basis (a) record Feb. 25 to expire March 31)	1,582	29.50	6.78
Interstate Power—345,833 sh (to be offered to commonholders on 1-for-6 basis (a), record April 2 to expire April 18, company will name price with underwriters bidding on compensation	.....	.....	.....
SCHEDULED FOR APRIL			**Bid Date**
Bonds			
Consumers Power—1st mtg 1987	$25,000		April 9
Wisconsin Power & Light—1st mtg 1982	7,000		April 15
Alabama Power—1st mtg 1982	12,000		April 22
Preferred Stock			
Wisconsin Power & Light—15,000 sh (to be offered to preferred stockholders, record about March 31 to expire April 21, subject to allotment in case of oversubscriptions)	1,500	.....	.....
Common Stock			
Colorado Central Power—17,306 sh (being offered to commonholders on 1-for-11 basis, record March 5 to expire April 7)	$273	$15.75	6.35%
Indianapolis Power & Light—196,580 sh (to be offered to commonholders on 1-for-7 basis, record April 10)	.....	.....	.....
Wisconsin Power & Light—288,208 sh (to be offered to commonholders on 1-for-7 basis, record about March 31 to expire April 21)	.....	.....	.....
Southern California Edison—800,000 sh	.....	.....	*
Gulf States Utilities—300,000 sh	.....	.....	April 29

*To be offered by First Boston Corp group, underwriters.
**To be offered by Blyth & Co. group, underwriters.
a—Stockholders are allowed oversubscription privileges.

Coulee Stamp . . .

. . . will touch off USBR Columbia Basin celebration, marking its 50th Anniversary

Celebrations and dedications are the order of the year for the Bureau of Reclamation, which is marking the fiftieth anniversary of the beginning of the reclamation program.

Commemorative Issue . . . The Post Office Department gave the bureau an assist by striking off a stamp to honor the Fiftieth Jubilee (see cut) which emphasizes the Bureau's role in the electric power business. The stamps went on sale March 15 at Grand Coulee, Wash.

A Little World's Fair of 4-days running will be held at Ephrata.

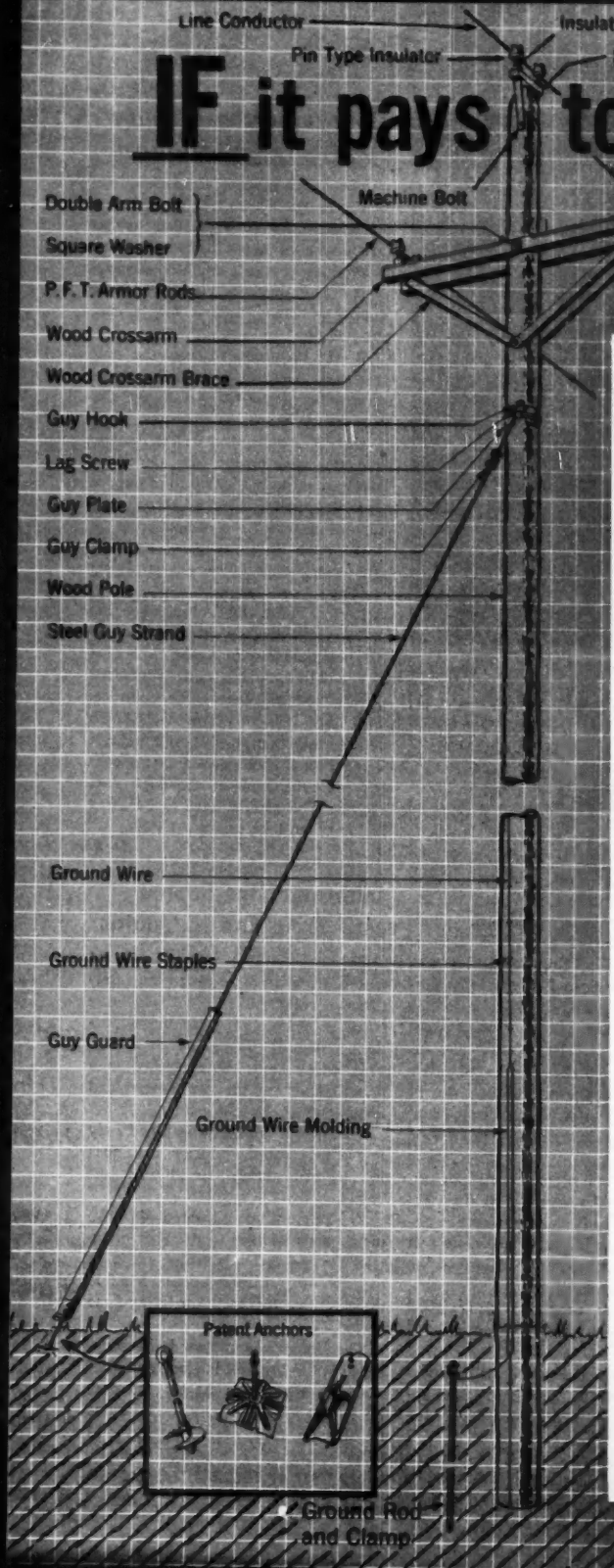
A seven-man committee appointed by Gov Arthur B. Langlie of Washington has been organized into a nonprofit corporation with a budget of $150,000 to carry out the program in Washington. Construction and other contractors have been asked to participate and contribute.

In the Pacific Northwest, Interior Department is taking part in a series of celebrations from May 22 to June 1 in connection with development of the Columbia Basin Project.

A special stunt has been devised to taunt those who opposed construction of Grand Coulee Dam by calling it "The Government's Great White Elephant." As a part of the celebration, a "great white elephant sale" will be staged, at which useless items contributed by Chambers of Commerce from all over the nation will be auctioned off. This is to be held at Quincy, Wash.

Aquatic Fete . . . The 11-day festival in Washington State will open with an Aquarama on the Snake River at Pasco, in which 30 floats will take part. On Soap Lake near Grand Coulee, a pageant called "Cavalcade of Free Men" will tell the story of the building of the power project.

IF it pays to standardize construction



...it pays to standardize on Graybar

It's no secret that you save time and expense through standardization of pole-line construction practice. But, are you aware of the *additional* savings you can make with Graybar as a standard source for all your pole-line supplies?

From Graybar you can order everything required for any pole-line construction or maintenance project—"from the top of the pole to the bottom of the hole." You eliminate the expense of individual inquiries and orders . . . you get dependable items made by manufacturers you know and respect.

Many pole-line items are stocked in Graybar warehouses strategically located throughout the nation – another reason why *standardization helps us help you.* You'll find that we can often work with you to arrange a program for stocking your standards in a warehouse that's conveniently near-by.

In addition, experienced Graybar Outside Construction Specialists are on call to help you solve unusual problems in planning any distribution or transmission facility. *Graybar Electric Co., Inc. Executive offices: Graybar Building, New York 17, N. Y.*

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Call Graybar first for... Graybar Everything Electrical

IN OVER 100 PRINCIPAL CITIES

DR KONRAD ADENAUER, JR, left, son of West Germany's chancellor, gets his first glimpse at American industry in General Electric Co's turbine plant at Schenectady, N. Y. William Saupe, manager of Steam Turbine and Generator Department, explains construction of the giant turbine shaft. The General Electric visit is part of Adenauer's 60-day tour of U. S.

Adenauer's Son Visits U. S.

General Electric Co's turbine plant at Schenectady, N. Y., was one of the stopovers made recently by Dr Konrad Adenauer, Jr, son of the chancellor of West Germany, during his 60-day tour of the country's power producing plants. Here he inspected the plant and had a discussion with GE officials.

The purpose of his visit is to interpret American democracy and industrial power to influential persons both in Cologne, where he is a public utility executive, and the industrial area of North Rhine-Westphalia, Germany. While on the tour, which is being sponsored by the Governmental Affairs Institute, the German visitor has met with government and civil leaders on the federal, state, and local levels as well as representatives of varied public and private organizations and associations.

Visits Power Groups . . . Following his arrival in the country in the early part of February, Adenauer spent an introductory week in Washington, D. C., visiting the American Public Power Association, National Association of Electric Companies, and the Federal Power Commission. Other stopovers included Public Service Electric & Gas Co, Newark, N. J., and the American Public Utility Bureau, New York City.

Sees Dams . . . The itinerary also included visits to the Tennessee Valley Authority, Los Angeles Department of Water & Power, Boulder Dam, Arizona-Nevada, and Bonneville Dam, Oregon.

Adenauer has expressed amazement at the development of the electrical industry in this country. In addition, he has indicated an interest in the labor-management relations in the industrial plants.

The utility executive also visited Duke University and the University of California.

This week Adenauer will confer with government officials in Washington and on April 8 he will depart for Germany.

U. S. to Purchase Copper 10¢ Above Ceiling Price

The government announced recently that it is going to pay 33.8¢ a lb, nearly 10¢ above ceiling, to get production of about 6,372,000 lb of prime lake copper. The Defense Materials Procurement Agency said the copper is vitally needed for defense production.

It will be produced over the next two years from the "high cost" champion mine of the Copper Range Co, Houghton County, Mich.

DMPA Administrator Jess Larson said the government has agreed to purchase up to 6,372,000 lb of copper from the mine by Dec. 31, 1953. The agreement may be canceled upon 60 days notice by either party and will end automatically if price controls are removed from copper.

Larson said the over-the-ceiling agreement with Copper Range, which has headquarters in Boston, Mass., is in line with the policy under which the government negotiates such contracts with mine owners where it is shown conclusively that production could not be continued economically at the ceiling price because of the high cost factors. The ceiling price is 24⅝¢ a lb for prime lake copper.

Improved Zinc Supply May Bring End to Quotas

Because the free world supply of zinc has improved so much the International Materials Conference may consider abandonment of the allocations system of the metal after July 1. This information was contained in a recent report of the copper-zinc-lead committee of the conference.

The system will be abandoned only if the zinc supply position continues to improve during the months just ahead.

The committee allocated 487,650 metric tons of zinc to member countries for the first quarter of 1952. It expects to allocate about 508,000 metric tons for the April-May-June period.

The committee reported that copper supplies are still inadequate.

About a year ago the IMC was set up by the U. S., Britain, and France to allocate free world supplies and

boost production of scarce key materials needed for the rearmament program. It operates through committees. Each committee handles one commodity or group of related commodities. Each commodity committee includes the free world's principal producers and consumers.

Accepts U. S. Tin Offer

The Indonesian government has accepted a United States offer of $1.18 a lb for tin produced in its country. The prices equals $1.21½¢, f.o.b., New York. The new contract calls for Indonesia to ship between 18,000 to 20,000 tons of tin here over the next three years. The price of $1.18 a lb will remain fixed during the first two years and will be subject to renegotiation in the third.

MANUFACTURING BRIEFS

Pennsylvania Transformer Co, Cannonsburg, Pa., submitted a low bid of $216,870 to the Army Corps of Engineers at Seattle for three 13,500-kva transformers to be installed in the Albeni Falls Dam powerhouse near Priest River, Idaho. Westinghouse Electric Corp was second with $217,-017, followed by Malone Electric Co, $222,207; Wagner Electric Corp, $223,104; General Electric Co, $226,-364; and Allis-Chalmers Manufacturing Co, $228,000.

Sylvania Electric Products, Inc, has been awarded a contract by the Atomic Energy Commission for an expanded program of research and development in the field of nuclear reactor materials. Sylvania's Atomic Energy Division, a new unit in the firm's 56-acre Bayside, Long Island, plant, will handle the work. The firm is building a 50,000-sq ft laboratory at the plant to house the new division, which eventually will employ about 500.

SALES ASSIGNMENTS

COMPANY STAFFS

Electric Service Manufacturing Co has made Harvey L. Cadwallader district manager of its Pittsburgh office. Cadwallader, a sales engineer at the company's Philadelphia office, has been with Electric Service for the past 12 years. He fills the post left vacant by the death of Bernard A. Gallagher.

NEW ELECTRICAL CONSTRUCTION

A weekly selection of U. S. electrical construction projects announced by private and government utility systems involving more than $70,000. Also listed are major industrial and construction jobs where electrical work is indicated or implied

UTILITIES

Proposed Construction

Ark., Ozark—Arkansas Valley Electric Co-operative Ozark, erecting substation, $750,000.

Fla., Orlando—Johnson Electronics, c/o E. S. Johnson, Orlando, mfg. plant, $100,000.

Ga., Atlanta—Dpt. Justice, Bureau of Prisons, U. S. Penitentiary, Atlanta, Ga. power plant. Robert & Co. Assoc., 96 Poplar St., N. W., Atlanta, Ga., engrs.

Idaho, Pocatello—Pub. Wks. Officer, Thirteenth Naval Dist., 1611 W. Wheeler St., Seattle, Wash., underground electrical facilities at Naval Ordnance Depot, Specs. 30398.

La., Rayne—Town, furnish, install 2 electric generating units. Bernard & Burk, 1023 Nicholson Dr., Baton Rouge, engrs.

Mich., Detroit—Hudson Motor Car Co., 12601 E. Jefferson St., 1 story, brick, steel, concrete power plant, East Jefferson St., $400,000. Body-Benjamin Assoc., Inc., 2210 Park St., engr.

Miss., Lyons — Coahoma Electric Power Assn., Clarksdale, warehouse-office, $120,000. Biggs, Weir & Chandler, 336 Meadowbrook Rd., Jackson, archts.

Missouri — Central Electric Power Co-operative, Linn, two 30,000 kva 161/69 kv sub stations, Wright and Maries Counties. Plans deposit $25. Frank Horton & Co., Lamar, engrs.

Nebraska — Northeast Nebraska Rural Public Power Dist., Emerson, 345 mi. rural distr. lines, Thurston, Dixon, Dakota, Wayne and Cedar Counties, $425,000; 151 mi. rural distr. lines, Dixon, Dakota and Thurston Counties, $200,000. Henningson, Durham & Richardson, Standard Oil Bldg., Omaha, consult. engrs.

Neb., Lincoln—Union College, V. S. Dunn, Bus. Mgr., 3800 S. 48 St., administration bldg. $500,000; power plant for college, $800,000.

North Carolina—Blue Ridge Electric Membership Corp., Lenoir, electric distr. lines Wilkes and Ashe Counties. Approx. $75,000. Plans deposit $10. B. O Vannort Engineers, 700 S. College St., Charlotte, engr.

North Dakota—Mor-Gran-Sou Electric Co-operative, Flasher, 388 mi. rural distr. lines, Morton Co.—$560,000. Associated Engineers, 107 S. 5th St., Bismarck, engrs.

O., Portsmouth—Ohio Power Co., 305 Cleveland Ave., S.W., Canton, substations in Portsmouth area to serve proposed new natural gas pumping plant of Texas and Eastern Gas Corp. near Wheelersburg, W. Va. $441,000.

Okla., Ponca City—Continental Oil Co., Ponca City, higher octane gasoline refinery unit, $3,550,000; high-pressure steam boiler plant unit, $350,-000; electric turbine generator unit, $2,000,000; auxiliary facilities for power plant, $400,000.

Texas—Humble Pipe Line Co., Humble Bldg., Houston, base radio stations in Petroleum Radio Service, near Eldorado and Sonora. Approx. $90,000 each.

Tex., Paris—Texas Power & Light Co., Interurban Bldg., Dallas, 80,000 kw main electric power plant to be called "River Cross Steam Electric Station" $4,800,000, 30 mi. southeast of here.

Tex., Paris—Texas Power & Light Co., Interurban Bldg., Dallas, electric power lines in general area of proposed power plant, 30 mi. southeast of here, $300,000.

Tex., Stamford—West Texas Utilities Co., Abilene, construct 132,000-volt lines to interconnect a proposed power plant near here, $750,000.

Tex., Stamford—West Texas Utilities Co., Abilene, 33,000 kw turbo-generator unit on Paint Creek Reservoir, 16 mi. northeast of here, $2,000,000; addnl. steam generating electric power plant units, $4,000,000.

Washington—U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash., two 480 volt power centers for Chief Joseph Dam, Inv. 52-33. Bridgeport.

Wash., Seattle — Civil Aeronautics Admin., Exchange Bldg., Seattle, Zone 4, 8x12 ft. transmitter bldg., 30x30 ft. steel antenna counterpoise and access road.

Wyoming—Bureau Reclamation, Dpt. Interior, Casper, Wyo., construction of Guernsey Tap-Guernsey 115-kilovolt transmission line, Transmission Division, approx. 6 mi. west of Guernsey, Missouri River Basin Proj., Spec. EC 3490.

Alaska—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., power transformers, power circuit breakers and air switches for Anchorage Sub-station, Eklutna Proj. Inv. No. DS-3653.

Low Bidders & Contracts Awarded

Ia., Boone—Weitz Co., Inc., 406 Fleming Bldg., Des Moines, Ia., CA, $428,754, power plant addns. Iowa Power & Light Co., Boone, Ia. H. R. Green Co., 417 1 Ave., S.E., Cedar Rapids, Ia., engr.

South Dakota—Baldwin-Lima-Hamilton Corp., 60 E. 42 St., New York, N. Y. LB $3,017,370, turbines and governors for Gavins Point Reservoir, near Yankton, Inv. 52-65. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids March 11.

Tex., Stamford—Austin Building Co., 1000 Singleton Blvd., Dallas, Tex., CA. Approx. $2,100,000. 33,000-kw turbo generator unit for power plant. West Texas Utilities Co., Abilene, Tex.

INDUSTRIAL, COMMERCIAL & PUBLIC BUILDINGS

Proposed Construction

Ill., Chicago—Chicago Suburban Centers, Inc., c/o Marshall Field & Co., 25 E. Washington St., plans by Perkins & Will, 309 W. Jackson Blvd., Zone 6, shopping center named "Old Orchard" on 110 acres, $12,000,000.

Ill., Springfield—Allis-Chalmers Mfg. Co., 3000 S 6 St., Springfield, plans by Hadley & Worthington, Myers Bldg., Springfield, 1 story 300,000 sq. ft., brick, steel main plant exten., $15,-000,000.

O., Cleveland—The Champion Forge Co., 2645 E. 78 St., plant expans. $4,000,000.

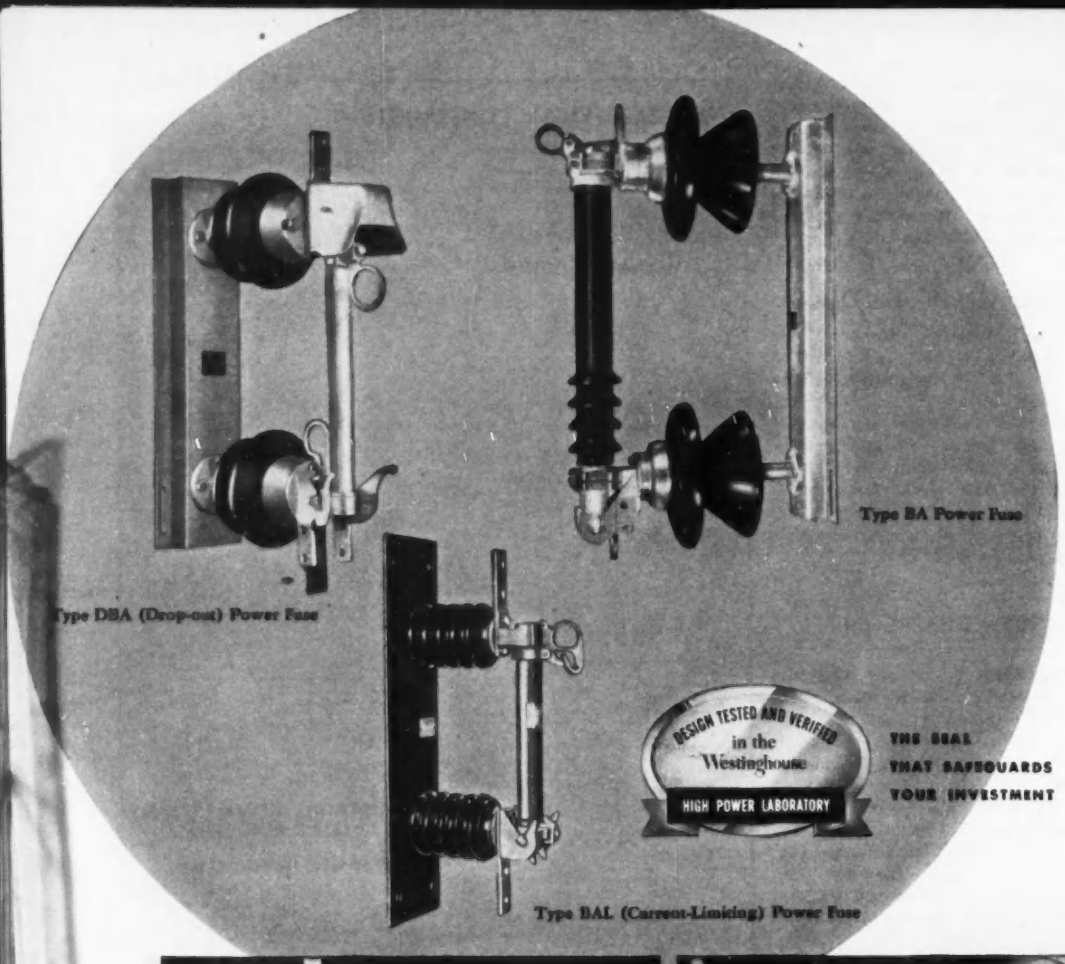
Tex., Stamford—West Texas Utilities Co., c/o Price Campbell, pres., Abilene, construct steam generating power plant, 33,000 kw-turbo-generator, by Paint Creek Reservoir, $7,000,000. Sargent & Lundy, 140 S. Dearborn St., Chicago, Ill., consult. engrs.

Low Bidders & Contracts Awarded

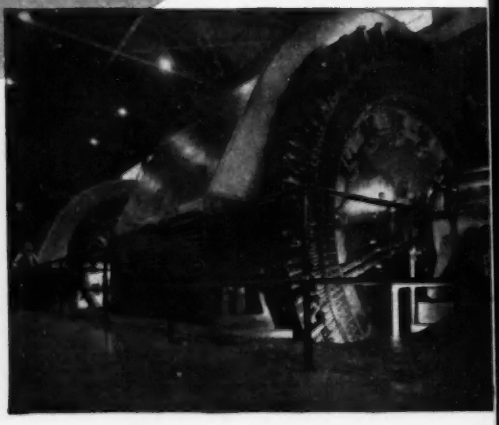
Calif., Fontana—Kaiser Engineers, 1924 Broadway, Oakland, Calif., CA. Total $65,000,000, design and construct, steel plant expansion at Kaiser Fontana Plant. Kaiser Steel Co., 1924 Broadway, Oakland, Calif.

N. Y., New York—Cauldwell-Wingate Co., 101 Park Ave., New York 17, N. Y. CA. Approx. $10,000,000. 50 story store and office southeast corner of Park Ave. and 58 St. Syndicate Louis Denberg, pres., c/o H. I. Feldman, archt., 415 Lexington Ave., New York 17, N. Y.

O., Painesville—H. K. Ferguson Co., 1783 E. 11 St., Cleveland, O. Total cost $10,000,000 design and construct facilities for major expans. of chlorine production at plant. Diamond Alkali Co., Union Commerce Bldg., Cleveland 14, O.



In a typical High Power Laboratory test, a Type DBA Fuse is shown interrupting the equivalent of a 3-phase, 1,000,000-kva fault. An instant after the photo was taken, the drop-out element operated, isolating the circuit.



Source of the laboratory's tremendous power are these two 60,000-kva generators. When paralleled, they are capable of delivering a 3-phase fault of 2,500,000 kva, or a single-phase fault equivalent to 4,000,000 kva.

ONLY *CONTROLLED* LABORATORY TESTING CAN PRODUCE THESE RESULTS:

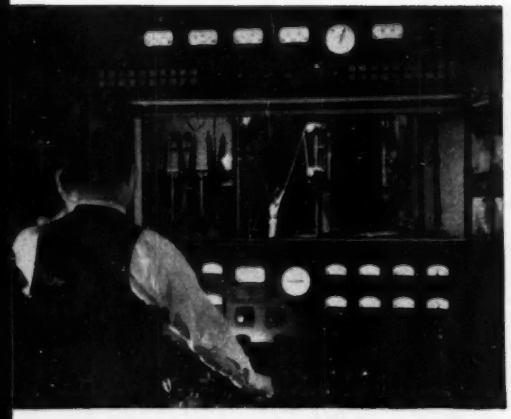
1. Application of Boric Acid Idea to Power Fuses

2. Proved Operation under all Circuit Conditions

In 1931, the Westinghouse High Power Laboratory—already five years old—played a major role in the development of the boric acid fuse. Conducting multiple tests under controlled conditions not available in the field, Westinghouse Laboratory technicians proved conclusively the soundness and superiority of the boric acid interrupting principle. The result is a complete line of low-cost protective devices proved to a degree unattainable by other means of testing. Considering the extent of your investment in fuse-protected equipment, this extra measure of sureness is an invaluable advantage. And it's one you get only when you specify Westinghouse.

Continued High Power Laboratory testing has also widened the application of this economical means of short-circuit protection. From the first Type BA Fuse, low-cost interrupting capacity has advanced with the development of Types DBA (drop-out) and BAL (current-limiting) until now 138,000-volt fuses that interrupt one million kva are available.

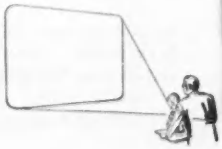
FOR COMPLETE INFORMATION on Westinghouse Power Fuses ask for a copy of Booklet B-5469. Contact your Westinghouse representative or write: Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-60781



From this control desk, a single operator guides all high power testing facilities. The control room also houses indicating instruments, protective relays, sequencing drums, and oscillographs which simultaneously record as many as eighteen variables.

See "Electrical Proving Ground"

...the dramatic story of the Westinghouse High Power Laboratory in sound and color motion picture. For details, see your Westinghouse Representative, or write: Westinghouse Film Division, Box 868, Pittsburgh 30, Pennsylvania.



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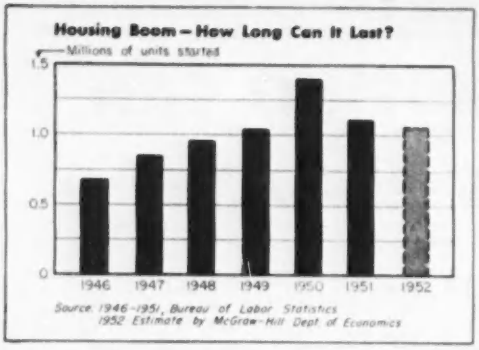
POWER FUSES

ELECTRICAL BUSINESS OUTLOOK



More Homes in 1952

Outlook now is for over 1 million starts, as many as the public is willing or able to buy

The housing boom is still with us. Until recently, shortages of key metals—especially copper—were expected to cut homebuilding drastically in 1952. But now builders plan to put up another million-plus houses, according to a recent "Business Week" survey. In fact, they think they can build as many housing units as the public will buy.

This is a sharp change from a month or two ago when Washington forecasts of housing starts ran as low as 600,000. Most private builders were never that gloomy. But many of them did expect a big drop in homebuilding.

The greatly improved outlook for critical materials (EW, March 3, p 50) is behind the new picture. Builders have already been granted more steel for homebuilding. And they expect to share in the greater allocations of copper and aluminum for civilian industry later this year.

So materials are no longer a major problem for most homebuilders. Non-metallic materials like lumber and cement have been plentiful for months. Labor is not much of a problem either. There are plenty of workers, and the rise in wages has begun to level off.

Money Is the Big Problem . . . Now builders are worried about finding enough buyers for the houses they put up. The general trend toward higher interest rates is making cheap mortgage money harder to find. And Regulation "X" cuts out some of the potential market for homes by requiring higher down payments and shorter mortgages.

Money troubles may ease later this year. More money for mortgages should appear once the big rush of borrowing to pay income taxes is over. And builders hope that Washington will decide to ease up on credit restrictions like Regulation "X" if sales of houses begin to lag.

How Long Can This Go On? . . . Builders and economists are wondering how long this housing boom can last. The answer seems to be: Some of the main forces behind the boom will soon start drying up. But some new sources of housing demand are appearing and they will take up a lot of slack:

1. The wartime lag in homebuilding left a big deficit in the U. S. supply of housing. But it's just about been made up in the last six years.

2. The high rate of marriages boomed postwar demand for housing. By 1950, there were 12% more married couples than in 1940. But far fewer new families will be formed from now on. The number of people of marrying age is declining, will stay low through most of the 1950's.

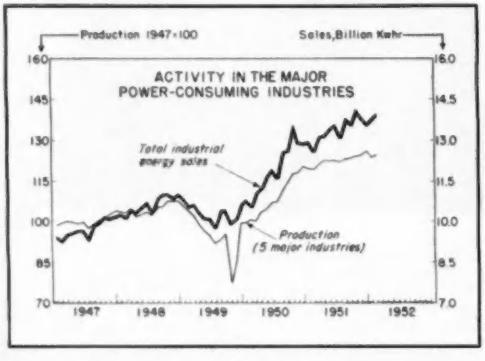
3. Everyone wanted his own home after the war. "Undoubling" created a big market for new dwellings as millions of couples and individuals stopped living with their relatives. The number of people living alone went up 45% in ten years. But this movement is just about over, too.

Demand from these sources will not just disappear—especially so long as the government keeps credit relatively cheap and freely available. But it will require some new sources of demand to keep homebuilding anywhere near the postwar level. Right now, it looks as if that demand will come from these sources:

1. Postwar houses are not big enough to hold all the growing postwar babies. With the population under five years of age up 54% between 1940 and 1950, needs for five- to seven-room houses with three or more bedrooms will be rising right through the next decade.

2. The non-white population needs better housing. In some cities, more than 80% of non-white dwellings are delapidated. And non-whites can now pay for much better housing than they could afford in the past.

3. Slum clearance and other public housing is on the rise. And volume is still far below the total authorized under the Housing Act of 1949. Public housing starts totaled 71,000 last year, may reach 150,000-200,000 a year within the near future.



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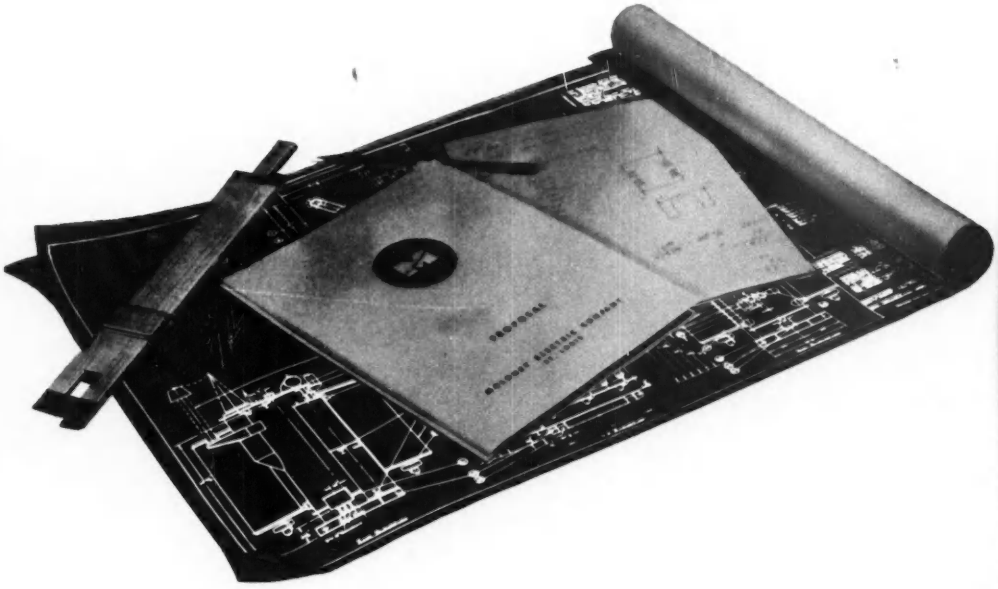

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